

AMIRTHAMANGALAM 1955: A MEGALITHIC URN-BURIAL SITE IN DISTRICT CHINGLEPUT, TAMILNADU

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WITH CONTRIBUTIONS BY K. S. RAMACHANDRAN AND H. K. BOSE

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1. INTRODUCTORY

A. THE PROBLEM AND PREVIOUS WORK

THE EXPLORATION OF THE MEGALITHIC SITES IN DISTRICT CHINGLEPUT IN TAMILNADU, was taken up systematically by the Archaeological Survey of India under V. D. Krishnaswami from 1944 to 1948. It resulted in the discovery of more than two hundred megalithic sites containing numerous types and varieties¹ in the two geological zones (into which the District is broadly divisible), namely, the lateritic in the north covering the Taluks of Ponneri, Tiruvallur and Sriperumbudur, and the granitic in the south covering the remaining four Taluks of Saidapet, Chingleput, Kanchipuram and Madurantakam.

To corroborate the results of the ground-survey, it was decided to excavate the representative types of megaliths, and, with this end in view, Sanur, the largest of the typical and representative sites in the southern zone, was excavated in 1950 and 1952.²

The excavations at Sanur offered an opportunity to open the representative types of megaliths in Chingleput District except the barrows which are confined only to the northern or the lateritic zone. In order to have a clear picture about the barrows and their contents, it was decided to excavate Amirthamangalam which had already yielded pyriform urns. The purpose of the excavation at Amirthamangalam³ was, therefore, to expose the burial-urns (without megalithic appendage) and establish their rôle and chronology in megalithism in general and in the Chingleput District in particular.

B. ACKNOWLEDGEMENTS

The excavation was carried out by the Southern Circle of the Archaeological Survey of India under the direction of the author with assistance from Shri K. S. Ramachandran, now Senior Technical Assistant in the Survey, Shri K. P. Balakrishnan, Foreman, Shri V. M. Naicker, Photographer (now retired), Shri T. Ganesan, Surveyor, and the late H. K. Bose, Assistant Anthropologist of the Anthropological Survey of India. I am grateful to all of them for their unstinted co-operation; to Shri H. K. Bose, I am deeply obliged for the preliminary report of the skeletal remains included here. Apart from working with the field-team he was engaged in the extremely careful and patient lifting of the skeletal remains.

2. THE SITE AND ITS ENVIRONS

The site at Amirthamangalam (pl. IA) in the laterite belt, in the Ponneri Taluk of the District, appears like a low laterite mound, turning almost to a peneplain. It lies on either side of the milestone 6 (10 km.) on the road from Kavaraipettai, on the Southern

¹V. D. Krishnaswami and N. R. Banerjee, 'Megalithic monuments of the Chingleput District', paper presented to the 35th Indian Science Congress, Anthropology and Archaeology Section, Patna, 1948 (full paper not published); V. D. Krishnaswami, 'Megalithic Types of South India', *Ancient India*, no. 5 (1949), pp. 35-45; and K. R. Srinivasan and N. R. Banerjee, 'Survey of South Indian Megaliths', *Ancient India*, no. 9 (1953), pp. 103-15.

²N. R. Banerjee and K. V. Soundara Rajan, 'Sanur 1950 and 1952: a Megalithic Site in District Chingleput', *Ancient India*, no. 15 (1959), pp. 4-42. Subsequently Kunnattur in the granitic part of the Sriperumbudur Taluk was also excavated. See *Indian Archaeology 1955-56—A Review*, p. 23; 1956-57, pp. 31-34; and 1957-58, pp. 37-38.

³*Indian Archaeology 1954-55—A Review*, pp. 20-22 and N. R. Banerjee, 'The Megalithic Problem of Chingleput in the light of Recent Exploration', *Ancient India*, no. 12 (1956), p. 31.

Railway, to Satyavedu, at a distance of 30 miles (48.28 km.) to the north-north-east of Madras. The road running roughly east-west actually cuts up the site into two. The site is surrounded by the village Amirthamangalam, Guruvarajakandigai and Sripulalpettai on the north, by Suravarikandigai and Govindarajakandigai on the east, by Rajulakandigai, Chinnapuliyur and Periyapuliyur on the south, and by the Pulambedu village and a tank on the west.

The low laterite plateau slopes in a strike from the south-west to the north-east and is marked at the fringes by a number of minor and six major irrigation-tanks, the most prominent among which are the tanks at Pulambedu, Amirthamangalam and Karambedu on the north-east direction.

The laterite plateau is marked on the surface alternately by almost circular grassy and clayey patches, the latter having the appearance of low dunes or mounds (simulating barrows) marked by a spread of lateritic gravel with an occasional and very sparse occurrence of the chips of quartzite. The site is disturbed by quarry-pits, and the position has become worse by the formation of rain gullies running through the site on the southern side of the road. The exposed sections of the pits have laid bare a large number of burial-urns in various stages of destruction; the road itself passes apparently through the main concentration of the urn-burials.

A large number of palaeolithic tools in quartzite was also collected from the loosened lateritic gravel (detritus) in the area (high ground). These tools, in which the typical Madrasian biface or handaxe predominates, include ovates, chopper-chopping tools, rostrocarinates, tools of the Levallois technique and Clacton flakes. The flakes are comparatively few.

Two low dune-like formations on the northern side of the road were first chosen for excavation in the apparently undisturbed area, but they did not yield any burials. The dune-formation on the surface may be attributed either to erosion of the surrounding soft soil or to the human effort to cover up the burial-pits. The latter alternative seems to be more plausible, as outlines of several deliberately dug pits were traced on plan on the surface as well as in the exposed sections, in both halves of the mound. Pits thus dug were not utilized, but filled in again and covered like tumuli, an action which is difficult to explain.

3. SUMMARY OF THE RESULTS

The cultural equipment of the urn-burial site at Amirthamangalam belongs, without any doubt, to the megalithic order of south India. The urns containing post-exhumated skeletal remains constitute the bulk of the finds. In fact, this extensive site containing upwards of two hundred and fifty exposed and damaged urns display a large variety of sizes. Irrespective of their sizes, they vary in shape from oval to nearly globular form. The urns are invariably hand-made, of coarse texture, granular fabric and thick. All of them have a rolled rim, with or without additional decorations below the rim. They have either a pedunculated bottom, which obviously pins the urns into the earth and helps to keep them in position, or heeled solid bottoms, flat at the lower end, which vary in diameter from 4" (10 cm.) to 11" (27.9 cm.). The urns were placed in pits (pl. IB) of adequate dimensions, cut into the lateritic gravel and even, wherever necessary, into the underlying lateritic bed-rock. The skeletal material, consisting of a selection of uncalcined, disarticulated and exhumated bones including the skull, long bones, loosened teeth and fragments of ribs, were placed at the very bottom. Over the skeletal deposit were placed a few (three or four) pots in Black and red Ware, besides a near Black-and-red Ware suggesting inverted firing, and few iron objects. The urns were then filled

in with earth, and covered with a dome-shaped lid; a variant in the form of an oblong lid was also, though rarely, noticed. The lids being large and commodious, their rim come down to the belly-level of urns, proving thereby the extreme care of the authors to seal the burials completely. The lids have also a rolled rim and are of the same workmanship as that of the urns; both are pale red in colour. A few small fragile and almost non-utilitarian crude red ware pots were found to have been placed over the lid near its edge.

After the interment of the urn with the lid, the whole pit was covered up and sealed. Occasionally a few blocks of laterite, cut deliberately, appear to have been placed along the edge of the pit. The tumuli, if any, formed over the interments were not available. But the pits were sealed by an overlying layer of loose gravelly earth, the flattened top resulting from a possible re-deposition after the washing off of the surface by rains.

On the whole, these burials appear to be simpler than the elaborate megalithic burials. The absence of the stone-circle, which is a very common feature of megaliths, the paucity of pottery and iron objects, and the small quantity of skeletal material tend to suggest a less sophisticated and conventional mode of disposal of the dead, perhaps even indicating a later date for the urn-burials than that of the other types of megaliths. In this context the occurrence of a few straggling bits of laterite stones at the edge of the pit may perhaps be taken as the relics of the stone-circle.

4. CHRONOLOGY

The site, indeed, has not yielded any internal evidence on chronology. The urns were without the usual megalithic appendage of the stone-circle, and this fact implies, on the whole, much less effort than that used in the construction of elaborate megalithic tombs, though the remains of an apparent stone-circle on a miniature scale has been observed at Amirthamangalam. The absence of an enclosing circle of stones by itself cannot be taken as a basis of chronology, as the simplicity of form can, with equal force, be applied to the incipient stage as to the decadent. In view of the trend of the megalithic evolution being accepted largely as from the north or north-west to the south, the urn-burials at the site generally would belong, by its location in an intermediate zone, to an early period, though the precise position of the particular tombs in the chronological order cannot be pronounced upon with exactness or emphasis. There is hardly any doubt that the culture represented by the urn-burials belongs to the megalithic-complex of south India. Wheeler¹ had earlier suggested a date-range of circa 200 B.C. to A.D. 50. But the recent trend is to push back the date of the beginning of the megalithic culture to about the eighth century B.C.² The radiocarbon dates³ for the chalcolithic cultures at

¹R. E. M. Wheeler, 'Brahmagiri and Chandravalli 1947: Megalithic and other Cultures in the Chitaldrug District, Mysore State', *Ancient India*, no. 4 (July 1947-January 1948), p. 202; *Early India and Pakistan* (London, 1959), p. 163.

²The possibility of an earlier date was first indicated by the author, Banerjee, *op. cit.* (1956), pp. 32-34. The views were later briefly expressed in 'Le probleme des megalithes aux Inde', *Antiquites Nationales et Internationales*, Vols. III and IV (1960), pp. 72-73, and later at the First International Congress on megaliths held in Paris, February, 1961. The position has been dealt with at length by the author in *The Iron Age in India* (Delhi, 1965). The 1966 evidence from Hallur, District Dharwar, Mysore, relating to the date of overlap between the neolithic and megalithic cultures in 955 ± 100 B.C. and 1105 ± 105 B.C. (TF 573 and TF 570) remains yet to be corroborated elsewhere.

³B. B. Lal, 'A picture emerges—an assessment of the carbon-14 datings of the protohistoric cultures of the Indo-Pakistan subcontinent', *Ancient India*, nos. 18 & 19 (1962 & 1963), pp. 215-16.

Eran and Nevasa clearly place its lower level to 600 B.C. and the fact of its overlap with the megalithic culture at several sites, such as Brahmagiri, Sanganakallu (Kupgal)¹ and Tekkalakota² in District Bellary and Hallur³ in District Dharwar, in Mysore, and Paiyampalli⁴ in District North Arcot, Tamilnadu, a date in the neighbourhood of 700 B.C. at the earliest is clearly established.

Conversely, it has been argued that since the white-painted black-and-red ware has been found at Madurai, not very far from Adichchanallur⁵ in District Tirunelveli, not to speak of the still northern specimens at Perumbair in District Chingleput, and as the ware has been found in association with the megalithic wares at T. Kallupatti⁶ in District Madurai, it is more likely for the megalithic culture to have begun in the tip of the peninsula at or near Adichchanallur, and from this centre spread towards the north.⁷ In this context, it may be added that the white-painted ware has been recently discovered from the megalithic levels at Sanganakallu and Hallur.⁸ The discovery of pre-iron megalithic monuments in Uttar Pradesh,⁹ and a broad cultural homogeneity prevailing throughout the peninsula would warrant reconsideration of such views.

It is not possible in this context to indicate an absolute date for the urn-burials at Amirthamangalam, though the possibility of their being slightly later than the date of the inception of the megalithic culture may perhaps be stated without any partisan emphasis. By their apparent similarity with the urn-burials at Amaravati, they can be dated to about the same period. It is clearly established that the urn-burials at Amaravati are stratigraphically earlier than the main *stūpa*, the earliest date of which goes back to the third-second century B.C. The urns at Amirthamangalam should, therefore, be assigned to a date prior at least to the third century B.C. This is at best provisional.

5. GENERAL OBSERVATIONS

The urn-burials at Amirthamangalam have several distinctive features. The diagnostic megalithic feature in the form of the bounding stone-circle is, however, missing¹⁰ here, although vestiges of the latter is, as stated above (p. 6), sometimes present in a diminutive but definite, though not utilitarian, form. The stone-circle is absent at Adichchanallur¹¹ as well. A diminutive stone-circle, in an ill-preserved and discontinuous form, is found around the urn-burial covered by a stone slab at Porkalam,¹² District Trichur, Kerala,

¹Indian Archaeology 1964-65—A Review, pp. 29-30.

²Information from Dr M. S. Nagaraja Rao and Indian Archaeology 1963-64—A Review, pp. 24-25.

³Ibid., 1964-65, pp. 31-32.

⁴Ibid., pp. 22-23.

⁵B. Subbarao, *The Personality of India*, Second Edition (Baroda, 1958), p. 176.

⁶Indian Archaeology 1958-59—A Review, p. 31.

⁷K. V. Soundara Rajan, 'The Iron Age Culture Provinces of India', *Bharatiya Vidya*, vol. XXIII (1963), nos. 1 to 4, pp. 1-21.

⁸Indian Archaeology 1963-64—A Review, pp. 31-32.

⁹Ibid., pp. 57-58, and information from Shri G. R. Sharma.

¹⁰B. K. Thapar, 'Porkalam 1948: Excavation of a megalithic Urn-burial', *Ancient India*, no. 8 (1952), p. 5, states that the circles in many cases are now missing (*italics mine*). There is indeed no evidence to suggest that there was invariably a circle around an individual urn. At least it was not so at Amirthamangalam.

¹¹A. Rea, 'Some prehistoric burial places in southern India', *Journal of the Asiatic Society of Bengal*, LVII, pt. I (1888), pp. 48 ff.

¹²Thapar, *op. cit.* (1948), p. 6.

which may suggest a homogeneous similarity with the urn-burials at Amirthamangalam despite a great distance between the two sites. It is, indeed, not necessary for the circle to be invariably present. In fact, urn-burials without this megalithic appendage were excavated at Maski¹ within the megalithic-complex. In view of the extensive occurrence of urn-burials throughout the megalithic zone in the peninsula, they have to be considered as part and parcel of the megalithic ensemble.

Urn-burials in India have a very long history dating back to the Cemetery H Period at Harappa. But the connection of the megalithic urn-burial with that of the Cemetery H is not known. It is, however, certain that it was once a very widespread custom and Tamil literature² and tradition have preserved several references to the urn-fields and megalithic burials. In fact, megalithic urn-burials became very popular in the south. Apart from the recent excavation of urn-burials at Porkalam in Kerala, Amirthamangalam in Tamilnadu and Yelleswaram³ in Andhra Pradesh, evidence about the urn-burials and their contents, recovered by exposure or excavations, has been forthcoming from all over south India. These include many sites in Tirunelveli,⁴ of which those at Kilnattam and Adichchanallur are better known, sites in Ramnad,⁵ urn-burials at Amaravati⁶ in District Guntur, Andhra Pradesh, funerary urns near Pondicherry,⁷ sites in the Nilgiri District,⁸ in the Pudukkottai⁹ area of the Tiruchchirappalli District and in the Coimbatore District, urn-burials in Malabar,¹⁰ particularly in Wynaad,¹¹ and urns at Jiwari¹² in the Hyderabad area of Andhra Pradesh. Apart from the sites mentioned above, urn-burials have been observed, earlier at a large number of sites like Korkai, Kayal,¹³ Kalugumalai, Vasudevanallur and Karivalamvandanallur¹⁴ in District Tirunelveli; Dadampatti and Paravai¹⁵ in District Madurai; besides the Travancore and Cochin parts of Kerala.

¹B. K. Thapar, 'Maski 1954: A chalcolithic site of the southern Deccan', *Ancient India*, no. 13 (1957), p. 32.

²K. R. Srinivasan, 'The megalithic burials and urn-fields of south India in the light of Tamil literature and tradition', *Ancient India*, no. 2 (1946), pp. 9-16.

³*Indian Archaeology 1961-62—A Review*, p. 3 and *Ibid.*, 1962-63, p. 2.

⁴A. Rea, *op. cit.*; *Annual Report Archaeological Survey of Madras and Coorg 1903-04*, pp. 23 ff.; and 'Ancient remains at Kaniyampundi', *Annual Report Archaeological Department, Southern Circle, Madras*, 1910-11, pp. 10-13.

⁵C. R. Krishnamacharlu, 'Some prehistoric sites in the Ramnad and Tinnevely Districts', *Annual Report Archaeological Survey of India 1936-37*, p. 67; and A. Rea, *op. cit.* (1888 and 1904).

⁶A. Rea, 'Excavations at Amaravati', *Annual Report Archaeological Survey of India 1908-1909* (Calcutta, 1912), pp. 88-91.

⁷Numa Laffite, 'A note on certain signs inscribed on pottery found in ancient funeral urns in south India', *Indian Antiquary*, LX (1931), pp. 137-38.

⁸J. W. Brecks, *An account of the primitive tribes and monuments of the Nilgiris* (London, 1837), pp. 72-110.

⁹K. R. Srinivasan, *Report of the working of the State Museum Pudukkottai*, Fasli 1348 (1938-39), pp. 3-5 and *ibid.*, Fasli 1352 (1941-42), pp. 6-7.

¹⁰W. Logan, *Malabar*, I (Madras, 1887), pp. 179-183.

¹¹L. A. Cammiade, 'Urn-Burials in Wynaad, Southern India', *Man*, Vol. XXX (1930), Art. no. 135.

¹²M. Taylor, 'Descriptions of cairns, cromblechs, Kistvaens, and other Celtic and Scythian monuments in Dekhan', *Transactions of the Royal Irish Academy*, Vol. XXIV, part iii (1862), pp. 329-362.

¹³R. Caldwell, 'Explorations at Korkai and Kayal', *Indian Antiquary*, VI (1877), pp. 80-83.

¹⁴L. A. Cammiade, 'Observations upon Ancient Sites in the Neighbourhood of Kalugumalai, Madras Presidency', *Man*, Vol. XXX (Oct. 1930), No. 136, pp. 187-189.

¹⁵A. Rea, *op. cit.* (1888).

The systematic exploration of megalithic monuments during 1944-48, concentratedly in the Chingleput District and the peripheral region, the Pudukottai area and the Cochin part of Kerala brought to light a large number of urn-burial sites. A complete list of such sites found in Chingleput, North Arcot and South Arcot areas together with a few sites discovered subsequently and general observations is given in the Appendix.¹

The excavations and explorations enumerated above have thrown considerable light on the urn-burials in general and have helped to establish firmly that they belong to the megalithic-complex. It will not be out of place to mention a few facts regarding their occurrence along with the megalithic monuments.

The Chingleput District has produced a large number of urn-burials throughout its expanse. Of the thirty-one sites so far discovered, twelve occur in isolation, while the rest are intermingled with the pure megalithic monuments.² The co-occurrence of urn-burials and megalithic monuments and, in fact, the incorporation of the urns within the megalithic structure of the cairn-circle is illustrated graphically in the Pudukkottai region as well as in the Nilgiris.

Even the *Kudakallu*³ group of megalithic tombs in Kerala come clearly within the category of urn-burials. These are not enclosed by a circle when alone or isolated, but when in a group or cluster they are invariably enclosed by slabs placed with an inward inclination, thus forming a bounding circle. Though a scientific excavation of such monuments has yet to be attempted, the section⁴ of a cutting that was published nearly 85 years ago indicates a pit, with a ledge around it near the top, cut into the lateritic rock underground. The ledge itself is approached by a flight of steps cut into the rock and reaching up to it. The shaft is comprehensively covered on the completion of the funerary ritual and deposit of furnishings which include the placement of the urn and its lid containing the skeletal remains into the pit and of the grave goods on the ledge excavated specially for the purpose.

The picture thus presented long before the birth of stratigraphical excavation in the country strongly recalls Porkalam as well as the urn-burials in Pudukkottai, though in neither of these cases had the grave-goods any ledge to rest upon. They were, therefore, spread in a cluster around and over the urn within the pit.

In Porkalam as well as in Pudukkottai, the pit containing the urn, was finally sealed from view by a slab of stone and enclosed by a circle. The urns in Pudukkottai were covered by a cairn. Again, there were multiple urns also as in the case of the multiple *Kudakallus* in Kerala.

The urn-burials in Nilgiris,⁵ too, are comparable in structure and form to those in Pudukkottai as they have the cairn-circle as well as the capstone.

The picture at Amirthamangalam is not very different, though it does not have the covering slab. The stone-circle, too, is virtually absent, though the occurrence of a

¹Compiled from the site-cards of exploration which was begun and conducted by the late V. D. Krishnaswami. The late K. N. Puri, and M. N. Deshpande, Y. D. Sharma, B. K. Thapar, K. V. Soundara Rajan and the present author have participated in the exploration work.

²See Appendix.

³V. D. Krishnaswami, *op. cit.* (1949), p. 40; and 'Prehistoric Cochin', *Proceedings of Indian Science Congress Association*, 1947.

⁴Logan, *op. cit.* (1887), pp. 182-83, *vide* illustration (No. IX) prepared by J. Babington, whose work on the description of the Pandoo Coolies in Malabar, in *Transactions of the Literary Society of Bombay*, Vol. III (1823), pp. 32-334.

⁵Brecks, *op. cit.*

cluster of lateritic blocks around the urn would point structurally to a megalithic connexion.

The similarity of contents, the form of funerary relics and intermingling of urns with the megalithic monuments either in close proximity or in inter-mixed association would leave no room for doubt as to familial inter-connexion between the urn-burials and the other types of megalithic monuments.

It is evident from the foregoing that the stone-circles may or may not occur in association with the urn-burials. Thus, urn-burials may be divided into two classes, viz., urn-burials (i) with and (ii) without stone-circles. In the former category may be included those with prototypal circles like the ones at Amirthamangalam (above, p. 6). Circles made of diminutive stones were found at Porkalam where a stone slab covered the urn. On the other hand, Adichchanallur did not yield any circle and this feature seems to be quite common as recent explorations have revealed many an urn-burial without this megalithic appendage at a number of sites like Nanjalur, Kattumannargudi, Kumaramangalam,¹ Parearkoil, Tulukanveli,² Nachchiarpettaimedu,³ Sengamedu and Erumanur⁴ in District S. Arcot, Terazhandur, Kandhahi, Pittachcheri, Perumkadambalur,⁵ Kilperumpallam, Manigramam, Viramethiruppu, Vanagiri, Nandanmedu,⁶ Vallam, Rajendram, Sikkal and Tillayadi⁷ in District Thanjavur, Samanattam, Palangunattam, Vilangudi, Paravai,⁸ Thatanodaimeedu, Sengulam, Vedar Puliangulam, Vilangudi, Tenur, Podumbu Sikandar Chavadi, Nagamalai Pudukkottai,⁹ Sangapadai, Tangalcheri, Madipannur, Sivarakkottai, Kottaimeedu, Amattiapatti, Periakattalai, Vandarai, Parapatti, Tirumanikkam, T. Kallupatti, Velambur,¹⁰ Chennampatti, Kuraiyur, Krisalkalpatti, Pudur and Kottaipatti¹¹ in District Madurai, Kottampatti, Kottaimeedu, Kattuputtur and Puttur¹² in District Tiruchchirappalli, Mohanur¹³ in District Salem, Perianayakanpalaiyam,¹⁴ Dharamapuri and Pollachi¹⁵ taluks and Karumandichellipalaiyam¹⁶ in District Coimbatore, in Tamilnadu.

Those outside this area include Chengamenad¹⁷ in District Ernakulam, Kerala, and Someshwara Hill and Gaudageri¹⁸ area in District Dharwar, Mysore, besides the sites at Gajendragad, Kalakaleswara, Rajur and Unachageri¹⁹ in the same District. Urn-burials even outside the southern peninsula are known, namely, those in the Munda

¹*Indian Archaeology 1955-56—A Review*, p. 27.

²*Ibid.*, 1958-59, p. 71.

³*Ibid.*, 1960-61, p. 63.

⁴*Ibid.*, 1961-62, p. 26.

⁵*Ibid.*, 1955-56, p. 27.

⁶*Ibid.*, 1961-62, p. 27.

⁷*Ibid.*, 1964-65, pp. 23-24.

⁸*Ibid.*, 1956-57, p. 80.

⁹*Ibid.*, 1957-58, p. 38.

¹⁰*Ibid.*, 1958-59, p. 32.

¹¹*Ibid.*, 1960-61, p. 19.

¹²*Ibid.*, 1963-64, p. 20.

¹³*Ibid.*, 1961-62, p. 26.

¹⁴*Ibid.*, 1957-58, p. 38.

¹⁵*Ibid.*, 1960-61, p. 18.

¹⁶*Ibid.*, 1961-62, p. 26.

¹⁷*Ibid.*, 1963-64, p. 13.

¹⁸*Ibid.*, 1963-64, p. 26.

¹⁹*Ibid.*, 1964-65, p. 31.



A. *General view of the urn field. See p. 4.*



B. *AMRM-2: outline of the pit. See p. 5.*



A. AMRM-2; contents of exposed urn A. See p. 13.



B. AMRM-3; damaged urn exposed in the quarry-pits. See p. 15.



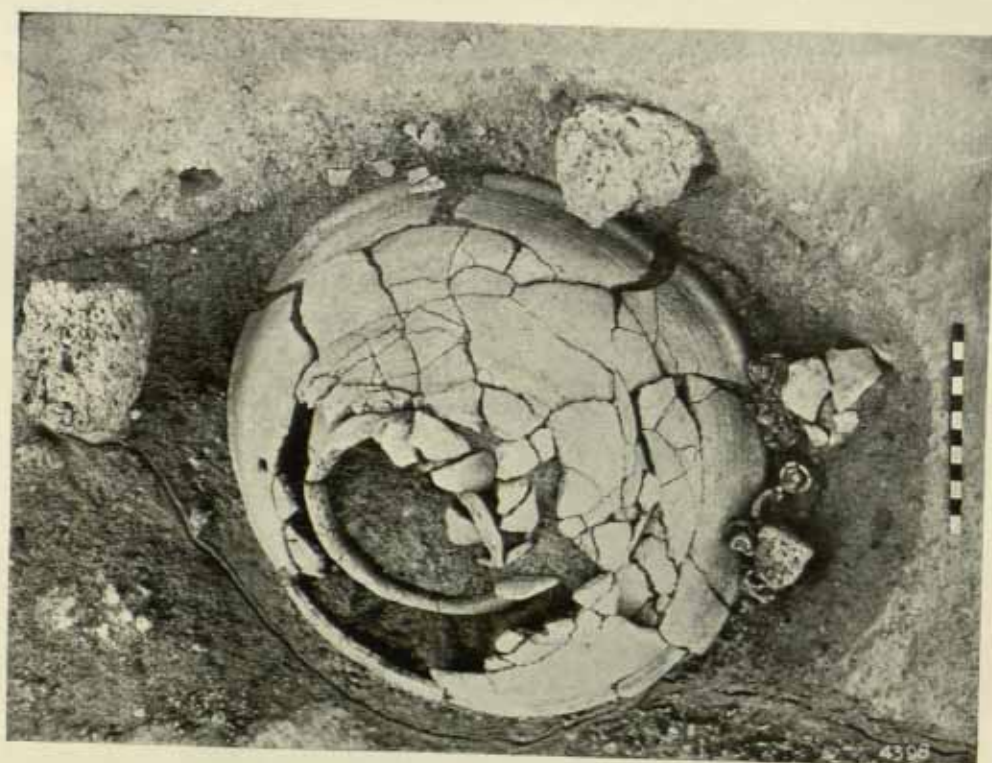
A. AMRM-2: Urn B. See p. 13.



B. AMRM-2: contents of Urn B. See p. 13.



A. AMRM-2: a view of Urn D, from south-east. See p. 14.



B. AMRM-2: top view of Urn D. See p. 14.

country' in the Ranchi District or the Chhota Nagpur plateau. Recent work in the Singhbhum¹ District has shown the incorporation of the urn within the dolmenoid-cist in this area.

As stated above (p. 5), the urn-burial revealed mostly the evidence of post-exhumation fragmentary burial but the evidence of complete skeleton is not wanting. A. Rea has adverted to the circumstances of full skeletons inside urns in the Tirunelveli District.² K. R. Srinivasan had adduced similar evidence from the urn-burials in Pudukkottai.³ Meadows Taylor had observed two full skeletons inside a cairn in Jiwarji⁴ more than a hundred years ago. Likewise, the evidence of two skeletons entombed in a dolmenoid-cist, made of slabs of stone, has come from Sultur⁵ in District Coimbatore. Though these are exceptional cases, a common streak of identical human behaviour runs through them all and thus threads them together on yet another ground.

The find of burnt bones⁷ inside an urn, covered by a slab, in the Nilgiri is reported by J. W. Brecks in 1837. If, correctly assessed, it agrees with the evidence of the Asur burials in the Munda country.⁸ The practice of prior burning and a secondary burial is also reported from elsewhere in the Krishna District.

In this context it would appear that the theory propounded by A. Aiyappan⁹ that the urn-burials are characteristic of the southern Districts of Tamilnadu, cists of Godavary and Krishna valleys and pottery sarcophagi of the intermediate region is very nearly true.

An interesting, though palpably incredible, theory about the rôle of the urn-burials was stated by M. J. Walhouse¹⁰ and it deserves but a passing mention. He believed that there was a practice in India of sacrificing infant girls, and it was these helpless victims who were buried in the urns, and the arms and weapons found inside constituted the very instruments with which they were slaughtered.

The urns at Amirthamangalam occur on a sterile lateritic highground, overlooking low-lying arable lands all round, surrounded by a large number of irrigation-tanks. This feature indicates the solicitude of the urn-burial people for the inviolate character of the prosperity-bestowing agricultural land. The location of the burials themselves on a position where they stand out apart and serve as a guardian angel for the prosperity of

¹J. C. Coggin-Brown, 'Note on cinerary urns found in the Munda country,' *Journal of the Bihar and Orissa Research Society*, Vol. I (1915) p. 131 and S. C. Roy, 'A note on some Remains of the Ancient Asurs in the Ranchi District', *ibid.*, pp. 229-53.

²*Indian Archaeology 1961-62—A Review*, p. 9.

³A. Rea, 'Prehistoric Antiquities in Tinnevely', *Annual Report Archaeological Survey of India*, 1902-03, pp. 118-19.

⁴K. R. Srinivasan *op. cit.* (1938-39) and (1940-41).

⁵M. Taylor, 'Ancient Remains in the village of Jiwarji near Ferozabad on the Bhima', *Journal of the Bombay Branch of the Royal Asiatic Society*, Vol. II (1851), Part 2, pp. 179-96.

⁶H. C. Beck, 'Notes on Sundry Asiatic Beads', II. Beads from Megalithic Tombs and Midden in Sultur Taluk and Neighbouring Districts, *Man*, XXX (Oct. 1930), Art. No. 134, p. 172.

⁷Brecks, *op. cit.*

⁸Coggin-Brown, *op. cit.*; S. C. Roy, *op. cit.* A tomb in the Munda country attributed by belief and tradition to the Asurs was opened by Dr. S. C. Ray recently and the urns were seen to contain calcined bones. Information from Dr. S. C. Ray and Shri A. K. Sharma.

⁹A. Aiyappan, 'The megalithic culture of Southern India', Presidential Address, Anthropology and Archaeology Section, *Indian Science Congress*, XXXII Session 1945.

¹⁰M. J. Walhouse, 'Some vestiges of girl sacrifices, jar burials and contracted interments in India and East' *Journal of the Anthropological Institute*, London, Vol. II (1882), pp. 415-23.

the community, even as the bare dolmenoid-cist at Uttiramerur in District Chingleput, to which this function was interpretatively attributed by Krishnaswami, indicates this.

The skeletal remains from Amirthamangalam indicate the post-exarnation multiple interment in fragmentary form as in other types of the megaliths, though the 'tower of silence' where the body might have been kept exposed in the first instance has yet to be found out here.

A few interesting features about ancient injuries or diseases have been noticed in the skeletal remains here. The evidence of a femur found in one of the urns showing malunion after a fracture (pl. XVC) is interesting from the palaeo-medical point of view (p. 24). There is, likewise, evidence of caries in the teeth.

The practice of offering grave-goods, presumably to provide for the journey to or for use in the life beyond, was in vogue here as in the megaliths. The absence or rather paucity of iron from the urns as also of other antiquities are of course striking. Iron was not indeed absent from the site, nor was it in a primitive stage; indeed, the broken fragment of a sword with a mid-rib (pls. XIIIB and XIVA), recalling the sophistication attained at Adichchanallur was found at the bottom of a partially-exposed and damaged urn in the rain-gully cutting into the lateritic subsoil.

Pottery formed the bulk of grave-goods here. In shape, fabric, and technique the vessels conform to the usual pots met with in the megalithic tombs. The urns themselves were, of course, hand-made as is usually the case everywhere in the megalithic complex. The oval and elongated shaped urns with their pointed bottom (described as pedunculated) simulate, as it were, the womb in appearance, and the entombment of the skeletal remains may, in this context, be symbolic of the return of the dead to Mother Earth. Yet, it has to be borne in mind that the bottom is not always sharply pointed or pedunculated but often disc-shaped in the form of a solid heel, 4 in.-11 in. (0.101 m.-0.279 m.) in diameter.

In consideration of the cultural characteristics, in general, presented by the urn-burials, they would have to be included in the megalithic-complex, despite the absence of the lithic enclosure or cover.

6. THE CUTTINGS

A. GENERAL

Excavation was carried out at four sites which are respectively called (i) AMRM (B)-1, (ii) AMRM-2, (iii) AMRM-3 and (iv) AMRM(B)-3.

As the two natural dunes in site AMRM (B)-1 proved unhelpful (see p. 3), the five partially-exposed urns in AMRM-2 were taken up first to lay them bare fully and, last of all, encouraged by the finds in AMRM-2, the barrow-like area in AMRM(B)-3 was taken up for stratigraphic excavation.

B. AMRM (B)-1

The site at AMRM (B)-1, where barrows were expected, did not yield any pit or urn. The negative evidence was, however, useful in that it indicated that all that looked like a barrow need not actually be a tomb (fig. 1).

AMIRTHAMANGALAM 1955, AMRM B1

(SECTION LOOKING WEST)

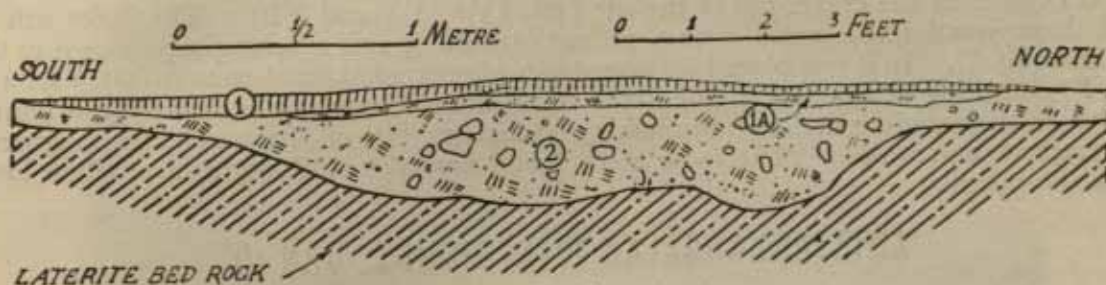


Fig. 1

C. AMRM-2

AMRM-2 has yielded five urns called, respectively Urns A, B, C, D and E. The actual work of excavation on the principal finds is described below.

(i) *Urn A*

The exposed urn in the gravel-quarry was examined for its contents. The gravel section, however, did not run over it, and, hence, nothing could be made out regarding its working levels. It was an already-damaged urn without a lid and, on clearance, the filling inside the pit was seen to have contained two pots, one intact and the other damaged (pl. II A). The intact pot was a jar of Black-and-red Ware with a large globular body, a tall neck, and carinated profile and a beaded rim. The sherds of the other pot, also of Black-and-red Ware, suggested the shape of a dish. The hand-made urn, with a pedunculated bottom, did not yield any skeletal remains.

(ii) *Urn B*

It was a damaged urn (pl. III A) having a battered lid with a rolled rim. The urn was inside a pit cut into the lateritic gravel. Wide at the top, the pit narrowed as it went down. The urn did not contain any bones but the grave goods in the filling of the pit consisted of three pots, all damaged, two of which were in Black-and-red Ware and the third in red ware. While the shapes of the Black-and-red Ware vessels were indeterminate, the red ware one was a globular jar with a blunt carination at the waist, a tall straight neck and an externally-beaded rim. The urn itself contained nothing apart from two red ware pots (pl. III B) of which one was a usual globular jar and the other an unguent bottle with pressed sides and a blunted base.

(iii) *Urn C*

It was much disturbed with only the lower portion available and further unaccompanied by any grave goods.

(iv) *Um D*

It was comparatively an intact specimen and the most representative of the urns found exposed in the gravel-pits of the site (pls. IVA, VA and VB). The large urn of oval shape was laid, as usual, into a pit cut into the gravel reaching right down to the bedrock (fig. 2). In it was placed an assemblage of selected skeletal remains (pls. VIA and XIVB) consisting of three tibia, one fibula, three humeri, one radius, one ulna, a femur, twelve teeth including molars, pre-molars and incisors, bits of phalanges, ribs, fragments of vertebrae and a skull. The loose teeth found near the skull might have fallen loose from the maxilla.

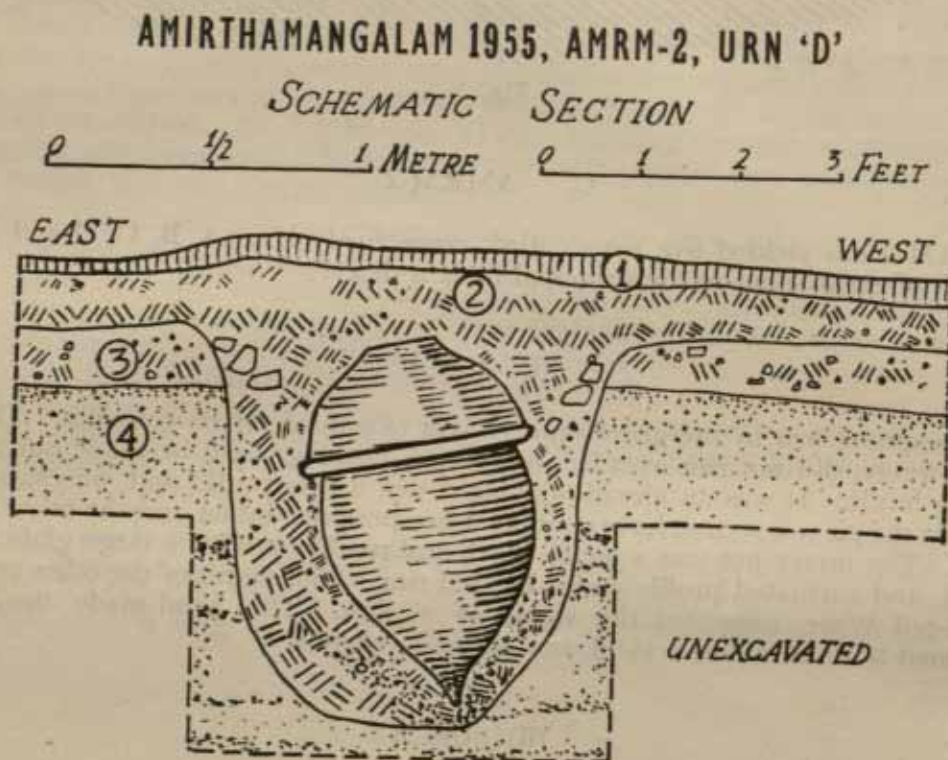


Fig. 2

The funerary furniture consisted of two pots in black ware, both of them bowls with a wide and narrow mouth and faceted or flattened rim with external grooves below the rim.

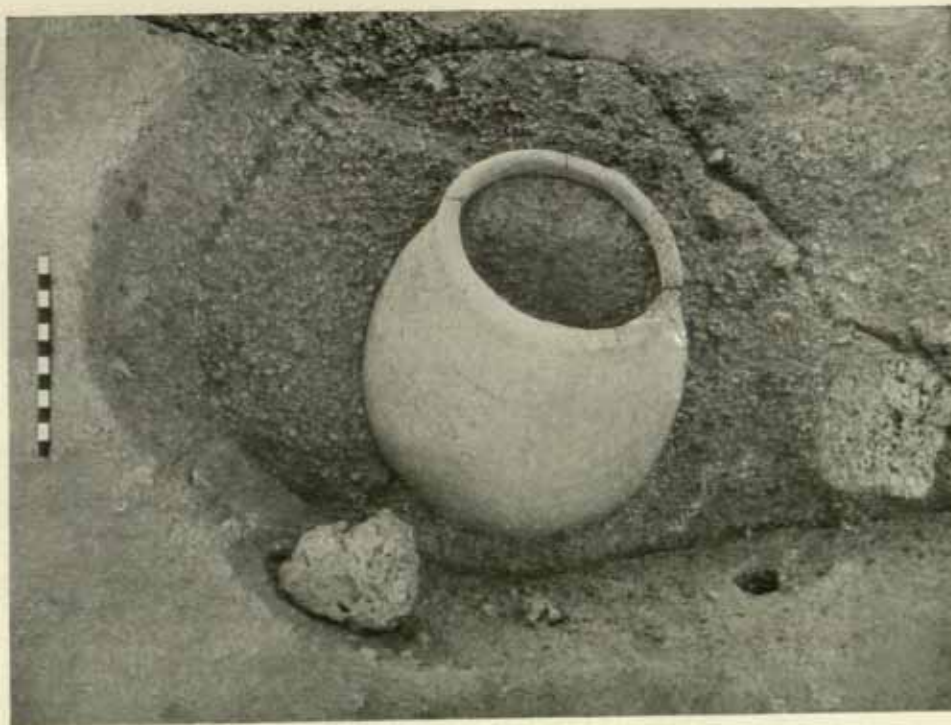
The urn was filled in with earth after the grave furniture, consisting of the fragmentary post-exarnation skeletal remains, and bowls, had been placed inside and finally covered with a basin-shaped flared out lid, the last mostly intact though cracked and damaged. Seven small pots of black ware and one of red ware, all very fragile, being of poor fabric, were placed partly over the fringe of the lid and partly into the filling of the pit beyond the edge of the rim, all huddled into one cluster.

A few small lateritic stones were placed outside the pit at its fringe (pl. IVB), suggesting the idea of the bounding stone-circle of megaliths.

This burial-urn presents a fairly representative picture of the process of interment in urns at the site, the only significant omission being the absence of iron objects.



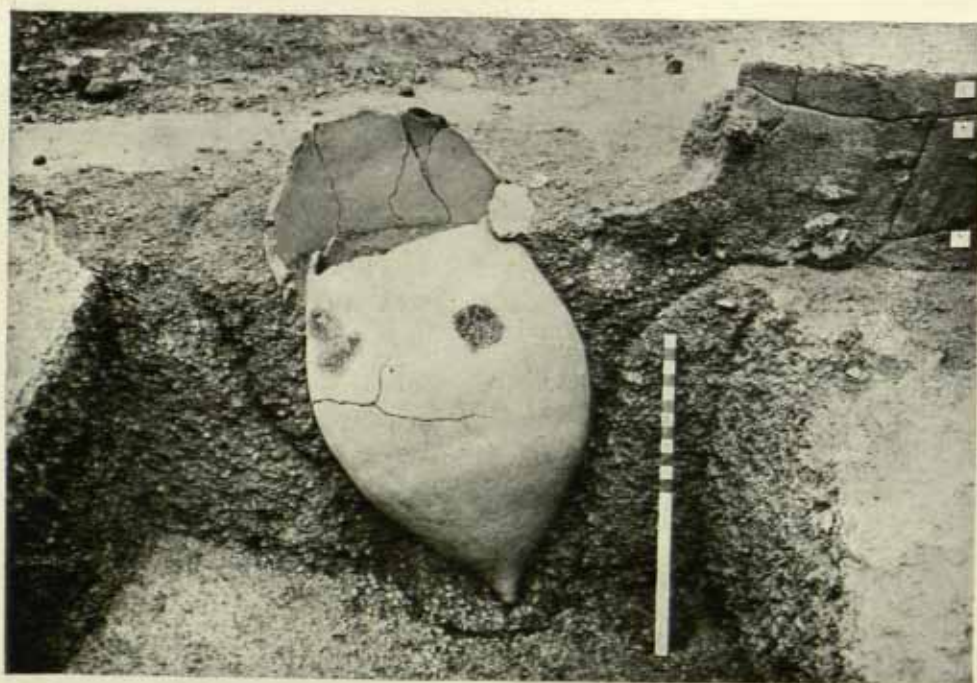
A. AMRM-2: Urn D, after removing the lid. See p. 14.



B. AMRM-2: Urn D, in relation to the section. See p. 14.



A. AMRM-2: contents of Urn D. See p. 14.



B. AMRM-2: Urn E, in situ. See p. 15.

(v) *Urn E*

It was an oval-shaped urn with a pedunculated bottom placed into a pit cut into the gravel, found partially exposed in the gravel section with a damaged lid (pl. VIB). The upper part of the urn, too, was damaged (pl. VIIA) and extraneous objects like blocks of stone, bits of the urn and its lid and earth were thrown inside. The skeletal remains were confined to a few fragments; the pots placed inside as grave-goods were also damaged with several fragments missing. Obviously, there was some disturbance, possibly shortly after the interment, which would account for the havoc. The tilted position of the urn would point towards the same conclusion, though the tilt could have taken place during the actual process of interment.

A large number of small pots in the shape of bowls, ring-stands, dishes, small vessels, a pyriform jar, etc., were found in a jumble in the filling of the pit (pl. VIII) a little below the rim of the lid, indicating that they were placed after the placement of the lid, but before the pit was filled up completely.

The miniature size of the pots is significant and may suggest a ritualistic, though non-functional, role.

The pit was finally filled up with earth, and, in all probability, a tumulus or low mound was formed over the interment. However, as there is no trace at all of any tumulus-like formation, its absence may be provisionally attributed to erosion which appears largely to have denuded the site of its upper features. While as many as twenty-six different pots could be counted, it was also observed that the red ware predominated over the Black-and-red and black wares.

D. AMRM-3

A single urn, with its upper parts damaged, together with the battered remnants of a lid was lying partially exposed in the quarry-pits (pl. IIB) by the roadside, a little to the west of the road itself. The urn had a heeled, not pedunculated, bottom (pls. VIIB) which is 4 in. (0.102 m.) in diameter. The upper parts of the section were not available, and, hence, a reconstruction of the complete process of interment was not possible, though it could not have been much different from the general practice adopted here.

The reclaimed grave goods consisted of two pots, one of which was a bowl in Black-and-red Ware and the other a straight-necked globular vessel perhaps in black ware, besides fragmentary skeletal remains of an adult and an infant, thus clearly indicative of the practice of dual or, for that matter, multiple burial in consonance with the megalithic tradition.

The skeletal remains consisted of seven fragments of ribs, long bones, two femurs, metatarsals and metacarpals, phalanges, detached fragments of six vertebrae and a damaged mandible with seven teeth in articulation belonging to an adult, besides a skull and twelve deciduous teeth belonging apparently to an infant, in addition to twenty-four teeth in articulation.

E. AMRM(B)-3

(i) *General*

A large area, measuring 21 ft. × 21 ft. (6.4 × 6.4 m.), marked by hardened circular clayey or grassy patches was next taken up for excavation with a view to recovering undisturbed specimens of urn-interment at the site on the western side of the road.

The excavations revealed interlinked pits, containing five urns, cut into the brownish lateritic gravel. The urns were called respectively A, B, C, D and E. These, too, were not free from disturbance, though, on the whole, Urn D is almost intact but for a slight tilt.

(ii) *Urn A*

It was an oval urn (pls. IXA and B) of rather small size, found tilted to one side, with a comparatively small mouth, a rolled rim and a pedunculated bottom. A few fragments of the broken lid were still sticking to the upper part of the urn, indicating that a disturbance might have taken place soon after the completion of funerary rites which resulted in the damaged condition of the lid described above as well as the tilt of the urn.

Inside the urn were found several fragments of a pot of red ware treated with a slip and decorated obliquely with incised lines. A few sherds of the black ware were also available in the filling. Filled originally to the brim with grave-goods and earth, it was apparently crushed by the overlying weight of the filling of the pit and the tumulus that appears to have covered the urn as well as by the pressure of the filling inside. Human bones began to appear at the belly level below the broken sherds, which may suggest that the skeletal remains were placed prior to the introduction of the accompanying grave-goods.

The fragmentary and uncalcined skeletal remains comprised the shaft of a femur with broken ends, bits of long and other bones, and deciduous molar and a fragment of an infant skull.

(iii) *Urn B*

It was also tilted towards the east and much damaged. The lid was also broken, perhaps due to the weight of the overlying filling. Beyond the reach of the lid, in the filling of the pit, was a globular pot, with a straight neck and beaded rim, in red ware. The urn contained three small pots (pl. XA) in black ware, of which two were globular jars of identical shape, while the third was a bowl with featureless rim and two broad and shallow grooves outside below the rim. It had no skeletal remains.

(iv) *Urn C*

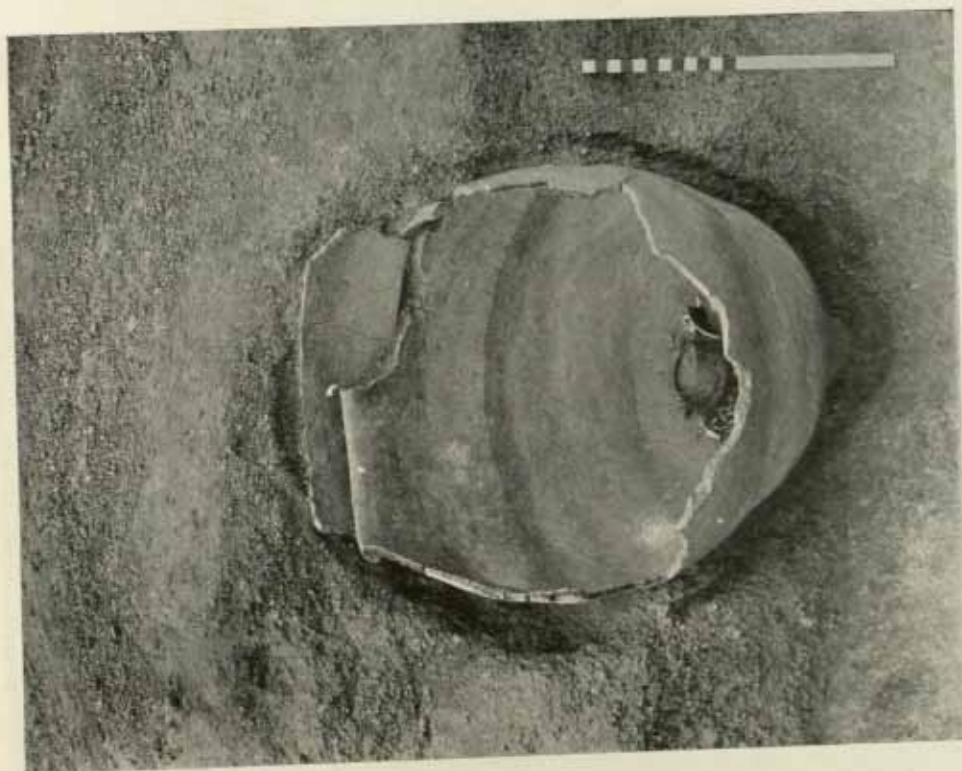
It was much damaged (pl. XB) and did not contain any pots. However, there were three fragments of long bones inside.

(v) *Urn D*

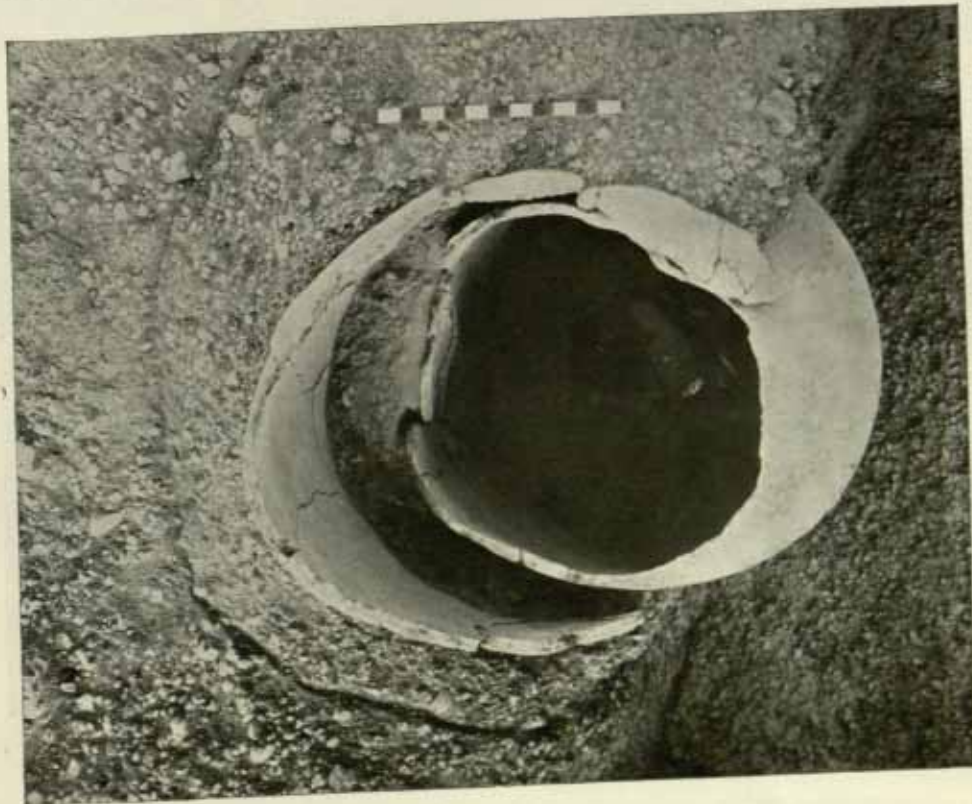
It was a small, round and squat pot covered with a lid having a flattened base (pl. XIA). The urn (pl. XIIA) itself was much damaged perhaps due to pressure. A few sherds of both red ware and Black-and-red Ware were found at the fringes of the pot into the filling, but beyond the reach of the lid.

The edge of the pit was lined with blocks of exotic granite, two of which are dressed, suggesting the remains of a stone-circle (pl. XIB).

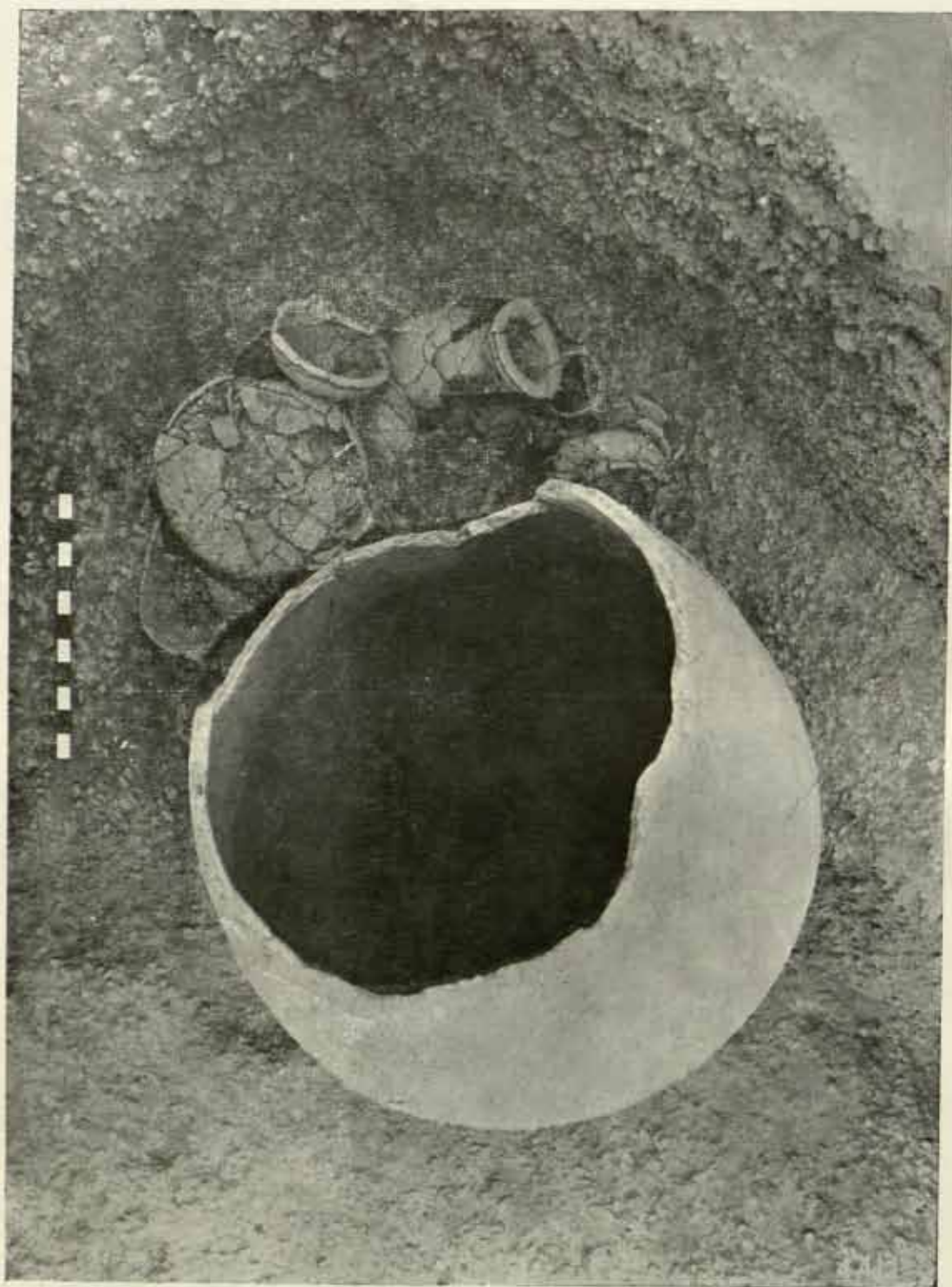
The urn contains a single flask or jar, with a straight neck, a beaded rim, a blunt carination at the waist and a flattish base. It is further marked by two grooves at the waist and two near the base. The shoulder bears a graffito-mark consisting of six lines converging towards a point near the neck.



B. AMRM-3: urn in section showing the damaged lid and contents. See p. 15.



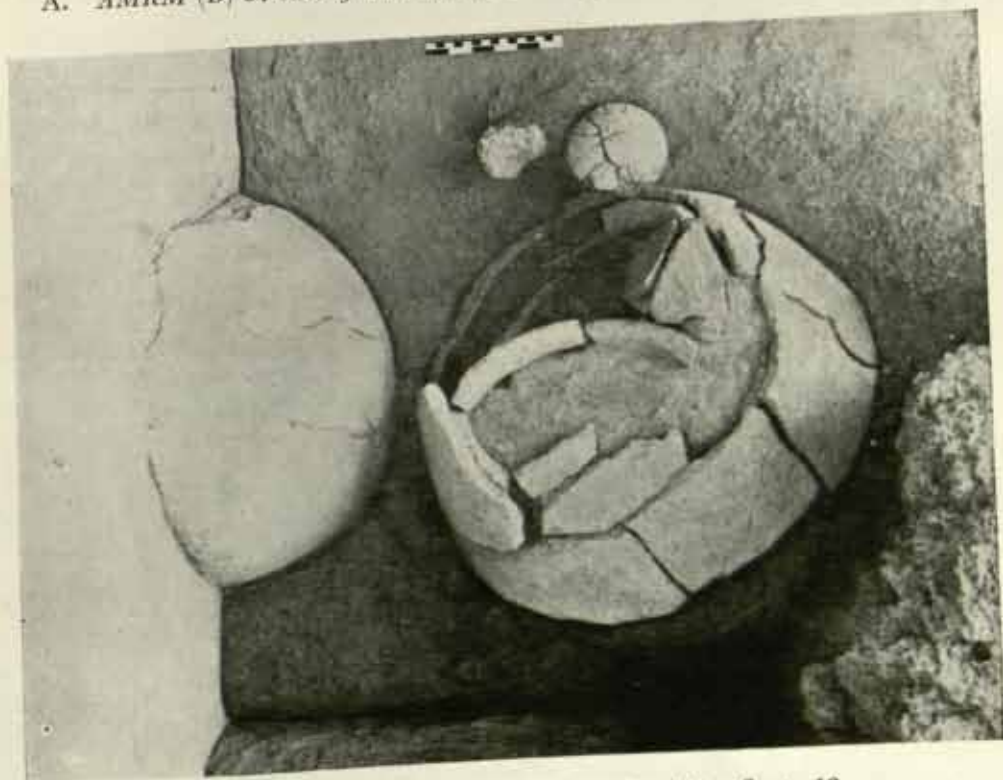
A. AMRM-2: Urn E, with the lid damaged, top view. See p. 15.



AMRM-2: Urn E and the pottery furnishings inside the pit. See p. 15.



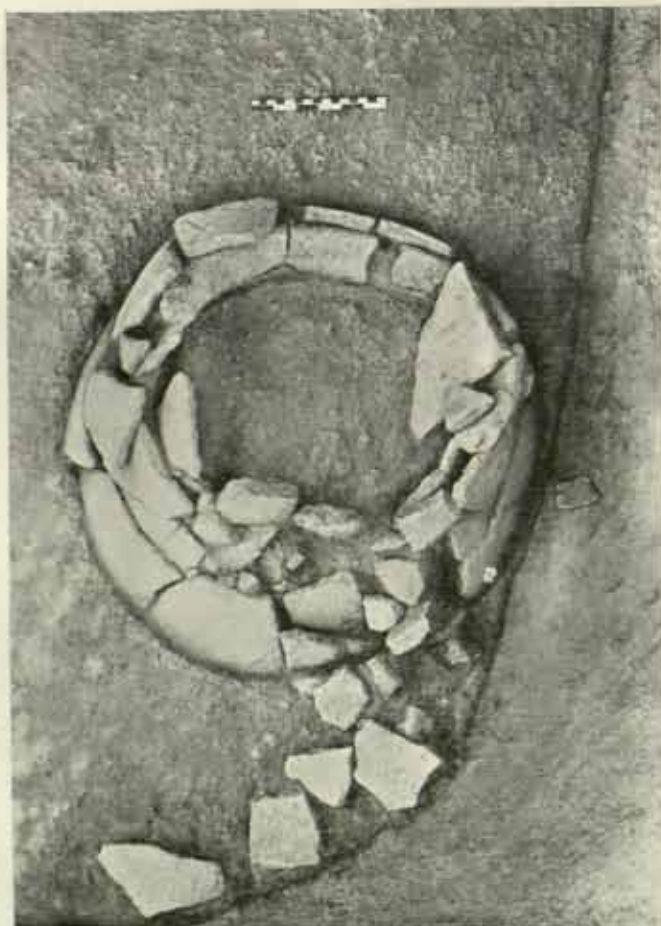
A. AMRM (B)-3: view of Urns A and B inside pit, from south-west. See p. 16.



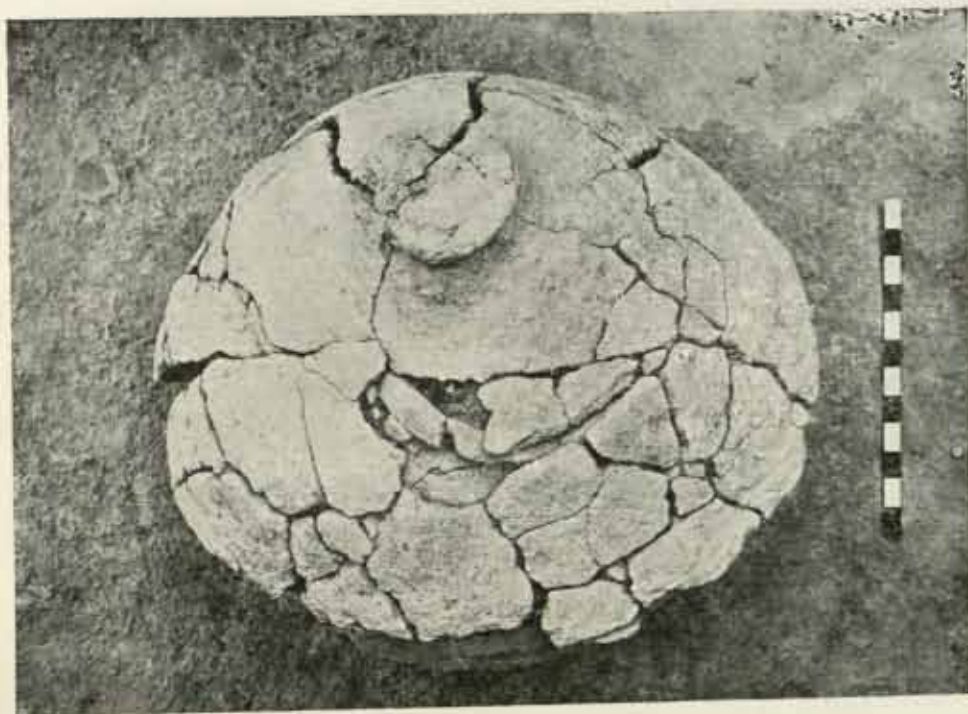
B. AMRM (B)-3: top view of Urns A and B. See p. 16.



A. AMRM (B)-3: contents of Urn B. See p. 16.



B. AMRM (B)-3: Urn C, after removal of earth filling. See p. 16.



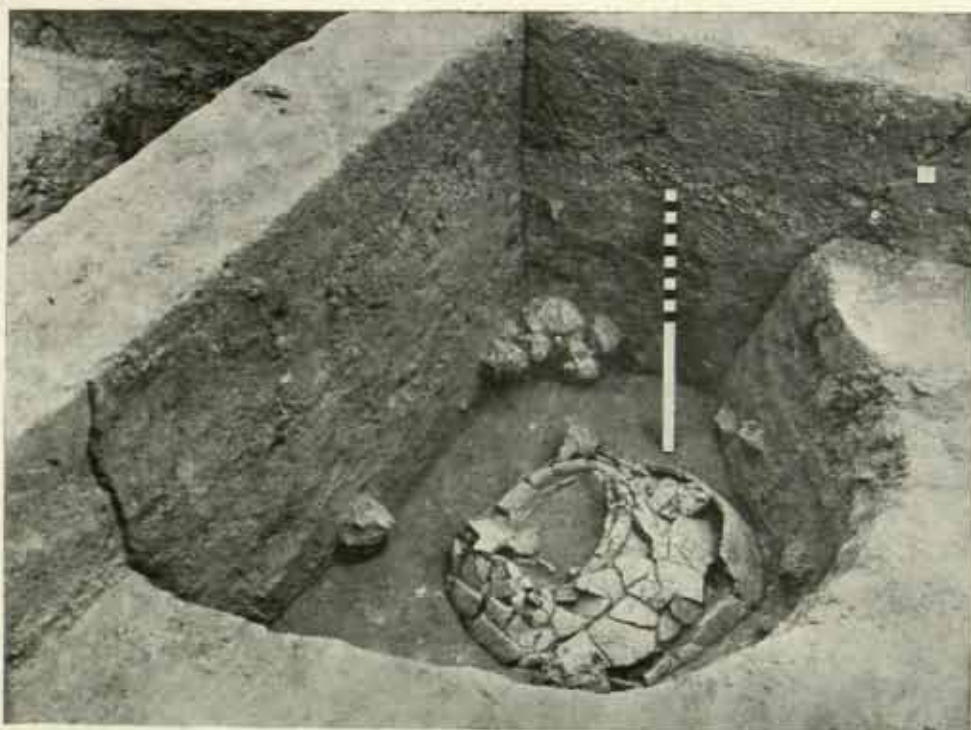
A. AMRM (B)-3: Urn D, with lid on. See p. 16.



B. AMRM (B)-3: Urn D, inside the pit and section. See p. 16.



A. AMRM (B)-3: Urn D, with the lid removed. See p. 16.



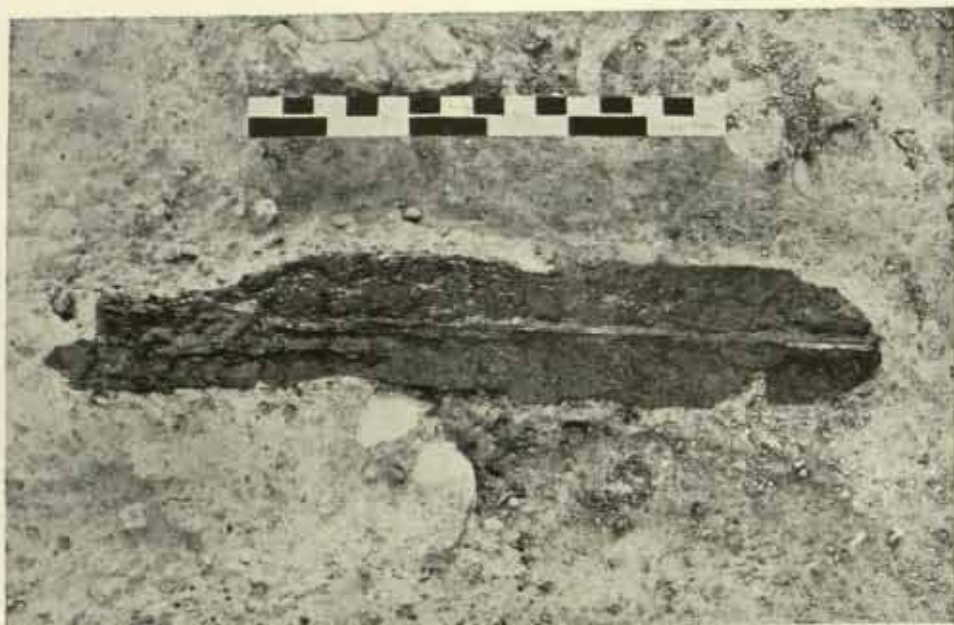
B. AMRM (B)-3: Urn E, inside the pit. See p. 17.



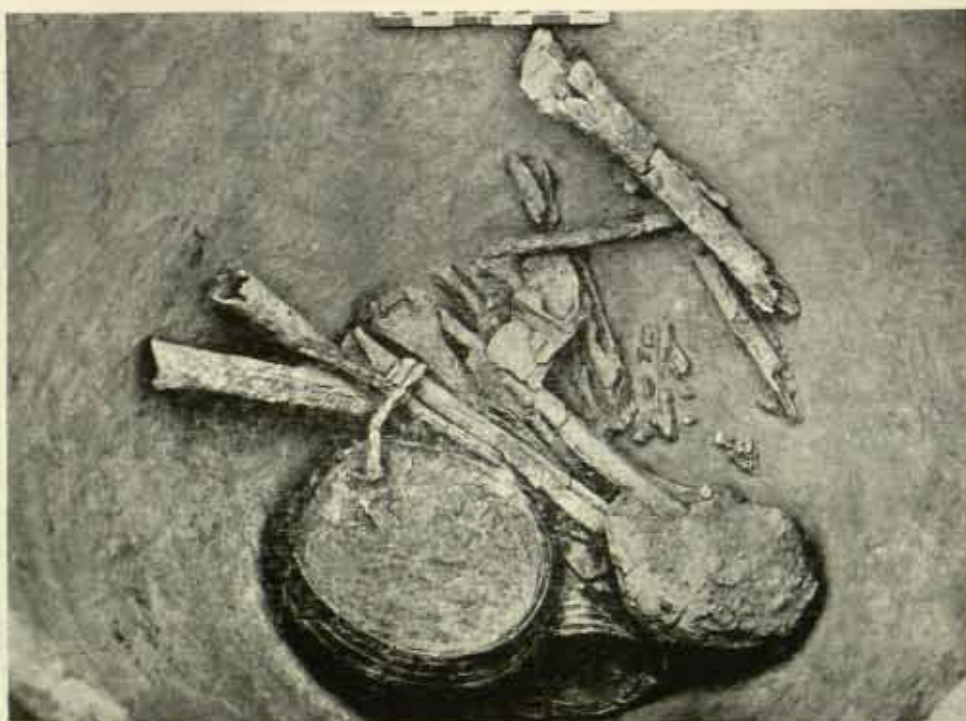
A. AMRM (B)-3: close view of Urn E. See p. 17.



B. AMRM: iron sword found in a disturbed urn. See p. 12.



A. AMRM: iron sword found in a disturbed urn. See p. 12.



B. AMRM-2: contents inside Urn D. See pp. 14 and 21.

The skeletal and cranial remains were rather ill-preserved and comprised the front portions of a skull, the nasal bridge, eye-sockets, the forehead and temples and the full set of sixteen teeth in articulation with the lower mandible, much disintegrated. The long bones included two femurs, fragments of tibia, one fibula, two clavicles and portions of a scapula and of the occipital region of the skull.

(vi) *Urn E*

It was a large but damaged urn (pls. XIIB and XIII A), covered with a battered lid lying a little to the north-west of Urn D. There were two disintegrated pots in red ware in the filling over the urn.

It contained the fragment of a long bone, probably the portion of a femur, and a few sherds of the black ware.

7. POTTERY

By K. S. RAMACHANDRAN

A. GENERAL

The pottery from Amirthamangalam can be classified into three wares, namely, the Black-and-red Ware, the black ware and the red ware. It is invariably wheel-turned except for the burial-urns in red ware and their lids. All the pots are of medium fabric. The number of pots is extremely meagre in contrast to those in cists or sarcophagi enclosed by bounding stone-circles. The funerary pottery occurs both outside and inside the urns. A distinctive feature is the occurrence of miniature vessels, mostly in the red ware, but also limitedly in the black ware. The Black-and-red and black wares are treated with a slip and are burnished. The slip on the red ware, if there had been any, has entirely disappeared.

Only one example of decorated pot was noticed and the design consisted of slanting incised lines on the shoulder and immediately below the waist of a black jar.

Grafitto-marks have been found on two pots and are described elsewhere.

The types in the Black-and-red Ware consist of bowls and carinated jars, those in the black ware being bowls—miniature, normal and deep—and jars—carinated and miniature. The red ware is represented by urns having a deep and elongated body—and a heavily-rolled rim, with or without a pointed (pedunculated) base, miniature bowls, miniature jars, lids or dishes, normal jars with vertical neck and beaded rim and large lids with heavily rolled rims to cover the mouths of the burial-urns.

B. THE TYPES

FIG. 3

The following select types are illustrated:

Type 1. Miniature shallow bowl of red ware with inturned featureless rim (recurve), a shallow but broad depression below the body and a sagger base. Medium fabric. (AMRM-2, Urn E).

Type 2. A miniature bowl of black ware with two grooves on the vertical sides, an everted rim and a sagger base. Medium fabric. AMRM (B)-3, Urn B.

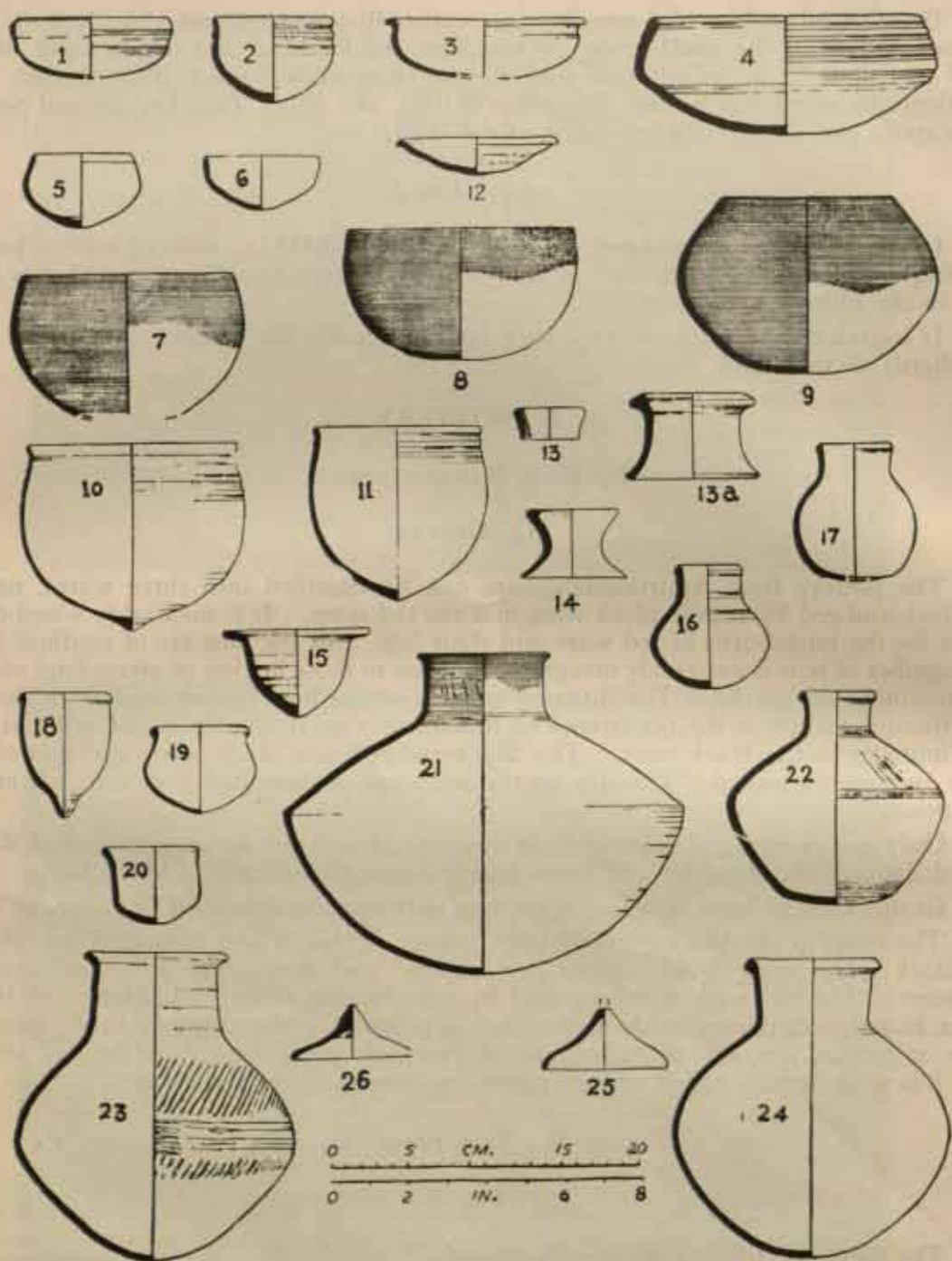


FIG 3

Type 3. Miniature dish or shallow bowl of red ware with out-turned sharpened rim, a depression below the rim and a sagger base. AMRM-2, Urn E.

Type 4. Burnished dish or shallow bowl of black ware with inwardly inclined sides having five equally-spaced grooves, an internally bevelled rim and flattish base. Medium fabric. AMRM-2, Urn D.

Type 5. Miniature bowl of red ware with inturned sides, a thin featureless rim, a bulging waist and a sagger base. AMRM-2, Urn E.

Type 6. Miniature bowl of red ware with a featureless rim, vertical sides and a sagger base. Medium fabric. AMRM-2, Urn E.

Type 7. Bowl of Black-and-red Ware with a thick featureless rim, slightly bulging waist and a sagger base. Medium fabric. AMRM-2, Urn E.

Type 8. A bowl of Black-and-red Ware with straight sides, an internally chamfered rim and a sagger base. Medium fabric. AMRM-2, Urn A. (Cf. fig. 24, T. 81; fig. 19, C3b from Brahmagiri, *Ancient India*, no. 4; fig. 14, B(1), from Maski, *Ancient India* no. 13—all variants.)

Type 9. Deep bowl of Black-and-red Ware with an inwardly-inclined shoulder, a featureless rim, a bulging waist and a sagger base. Medium fabric. AMRM-2, Urn E.

Type 10. Burnished deep bowl of black ware with a thin out-turned rim, vertical sides containing five evenly spaced grooves ending under the rim, a bulging waist and a tapering body with the base ending in a prominent nipple-like tip. Medium fabric. AMRM-2, Urn D. (A variant of this (with worn-out slip), with seven grooves, has been found in burials at Kilpauk by M. D. Raghavan.)

Type 11. Burnished deep bowl of black ware with an everted rim, vertical sides, a bulge at the waist and a tapering body with the base ending in a nipple-like tip. Three evenly-spaced grooves under the rim are found. Medium fabric. AMRM-2, Urn D.

Type 12. Flattish dish or lid of red ware with thickened and externally bevelled rim. Medium fabric. AMRM-2, Urn E. (Cf. fig. 14, P14b from Brahmagiri, *Ancient India*, no. 4, fig. 23, no. 28 in red ware from Maski; and pl. XXXIII, no. 14 from Perumbair, *Annual Report Archaeological Survey of India* (abbreviated hereafter as *ARASI*), 1908-09—all variants.)

Type 13. Miniature ring-stand of black ware with a thick featureless out-flaring rim at top and a flat rim at the narrow base.

Type 13a. Ring-stand of red ware with an externally bevelled and thickened rim on the upper side and a featureless rim at the broad base. Medium fabric. AMRM-2, Urn D.

Type 14. Ring-stand of red ware with a flat internally indented (projected) rim on the narrow upper side and a thin featureless rim at the broad base. Medium fabric. AMRM-2, Urn E.

Type 15. Miniature conical bowl or lid of red ware with flat flanged rim. Three broad depressions, apparently due to the pressure exerted by the finger while being turned on wheel, is seen clearly on the inner side. (Surface, of. pl. XXV, no. 6 from Perumbair, *ARASI* 1908-09 and also pl. LVI, no. 14, a variant from Tirunelveli, *ARASI* 1903-04, both black.)

Type 16. Miniature jar (worn-out slip) of black ware with a clubbed rim, a vertical neck with two incipient raised grooves on the shoulder, a bluntly-carinated waist and sagger base. Medium fabric. AMRM-3, Urn A.

Type 17. Miniature globular-jar (slip worn-out) of black ware with a beaded rim, a short vertical neck and a sagger base. Medium fabric. AMRM (B)-3, Urn A.

Type 18. Miniature conical vessel or cup of red ware with a clubbed rim and a pedunculated bottom. Medium fabric. AMRM-2, Urn E.

Type 19. Miniature globular vessel of red ware with an externally beaded rim, a bulging waist and a rounded base. Medium fabric. AMRM, surface.

Type 20. Miniature (worn out and misshapen) deep bowl with a thin out-turned rim, tall vertical sides, a bluntly-carinated waist and a sagger base. Medium fabric. AMRM-2, Urn B.

Type 21. A jar of Black-and-red Ware, with a clubbed (out-turned) rim, a vertical neck, a tapering shoulder, a sharply-carinated waist and a sagger base. An incipient depression below the rim and a raised ridge at the junction with the shoulder can be seen. Bears post-firing graffito marks on the inner side of the neck comprising five almost evenly-spaced, slanting lines. Medium fabric. AMRM-3. (Cf. pl. XXXVI, nos. 1 and 5 from Perumbair, *ARASI* 1908-09, both black ware).

Type 22. Burnished (worn-out) small jar with a vertical neck, an externally beaded rim, a slanting shoulder, a bluntly-carinated waist and a body tapering and ending in a flat base. Two small grooves on the waist and three above the base are to be seen. On the shoulder are to be found post-firing graffito-marks comprising seven lines converging to a point at the base of the neck. Medium fabric. AMRM (B)-3, Urn D.

Type 23. Burnished black jar with an out-turned rim, a vertical neck (with thin incipient ridges), a tapering shoulder, a bulging waist with three evenly-spaced grooves or depression and rounded base. A band of slanting linear incised decoration is to be seen on the shoulder and two bands immediately below the carination, Medium fabric. AMRM-2, Urn B.

Type 24. Globular jar of red ware (slip worn-out) with a beaded rim and a vertical neck with a raised ridge and two faint lines at the junction with the shoulder. Medium fabric AMRM-2, Urn A.

Type 25. Miniature funnel-shaped lid of red ware with a featureless incurved rim and a pinched finial. Medium fabric. AMRM-2, Urn E.

Type 26. Similar to above with a sharpened rim. Medium fabric. AMRM-2, Urn E.

C. GRAFFITI

The designs are simple and are confined to an arrangement of multiple lines.

Type 1.—A set of five equally-spaced shorter lines incised slantingly on the inner side of a Black-and-red Ware jar (*Type 21*).

Type 2.—A set of six lines, incised on the shoulder of a black ware jar, converging to a point at its junction with the neck (*Type 22*).

8. PRELIMINARY REPORT ON THE SKELETAL AND CRANIAL REMAINS FROM AMIRTHAMANGALAM

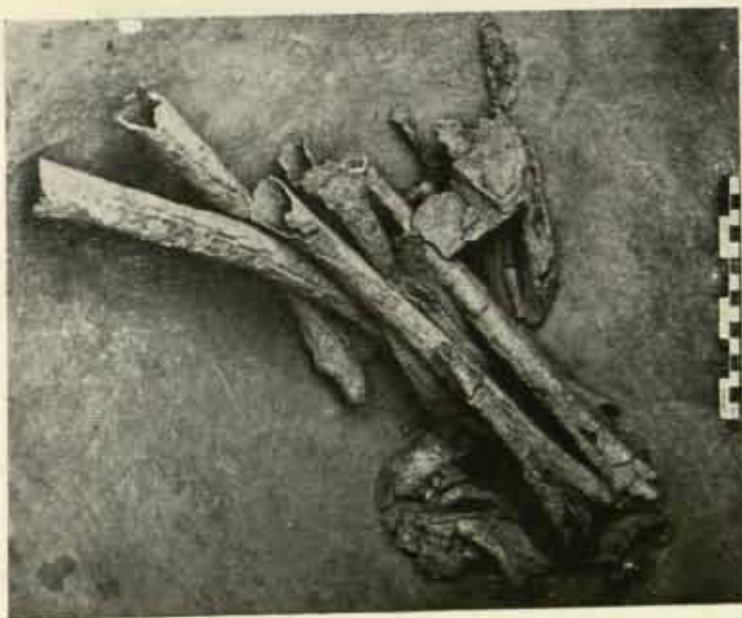
By H. K. BOSE

A. INTRODUCTORY¹

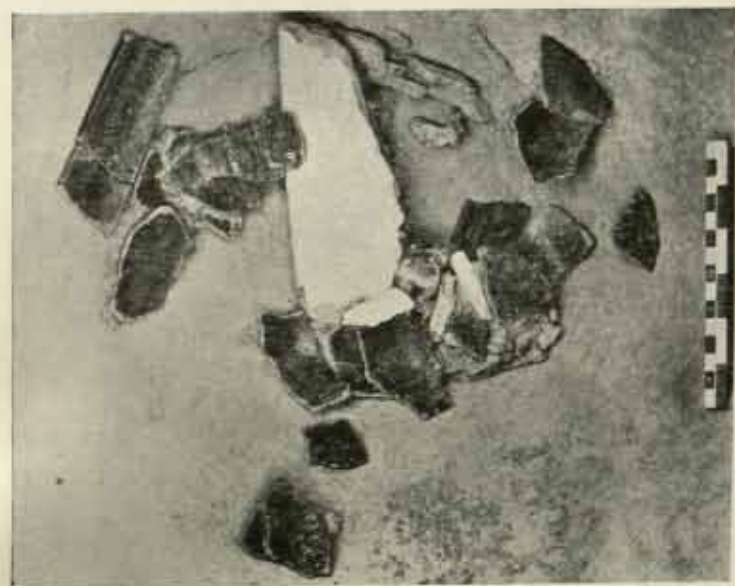
Of the four sites excavated at Amirthamangalam in 1955, the site at AMRM (B)-1 did not yield any relics at all. Of the rest, sites AMRM-2 and AMRM(B)-3 had each five urns, while the site AMRM-3 had a single urn to account for. Not all the urns were found to contain skeletal remains, which were confined to Urns D and E in AMRM-2, to Urns A, C, D and E and also to the single urn in AMRM-3. Thus, the skeletal remains were confined to seven out of the eleven urns exposed in the excavations. The absence of bones from the damaged urns can be easily understood. The absence of bones in Urn B of AMRM(B)-3, however, is to be attributed to a deliberate action or to an accident, if not to subsequent damage by spoliation. It is also observed that animal bones were not associated with these urn-burials.

The bones are fragmentary, disarticulate, uncalcined and of more than one individual in at least three cases, namely, in Urn D of AMRM-2, Urn A of AMRM(B)-3, and in the single urn of AMRM-3. This would indicate that the urn-burial people did not burn the dead, but exposed them somewhere and later collected the skeletal remains—not all the bones of the dead but all that could be found readily after the flesh had decomposed or had been eaten away by the carrion eating birds or beasts. They then put them inside the urns already fitted into their pits, along with a gift of suitable grave goods.

¹Introductory paragraphs written by the present author.



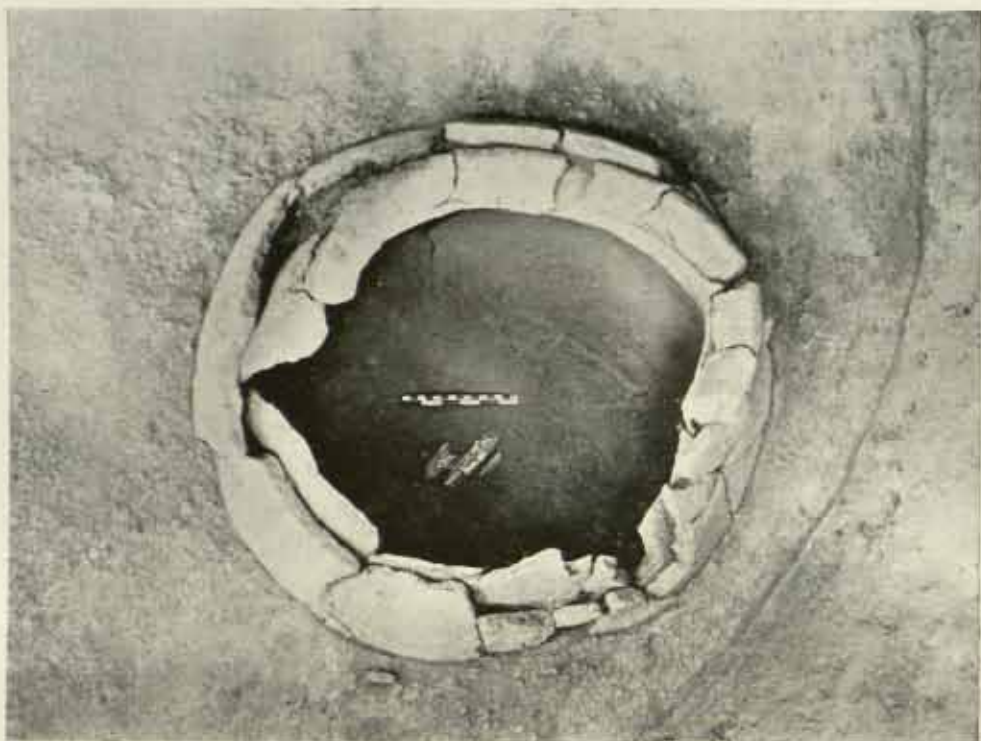
A. AMRM-2: skeletal remains in Urn D. See p. 21.



B. AMRM-2: contents of Urn E. See p. 23.



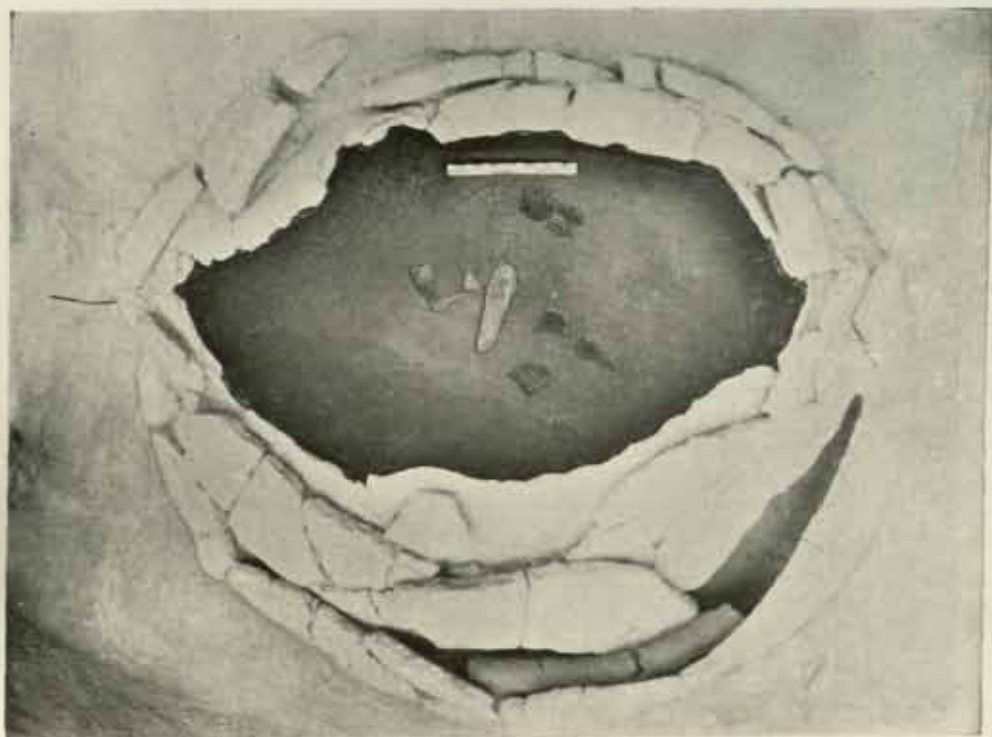
C. AMRM-2: fragment of a femur showing the fracture. See pp. 12 and 24.



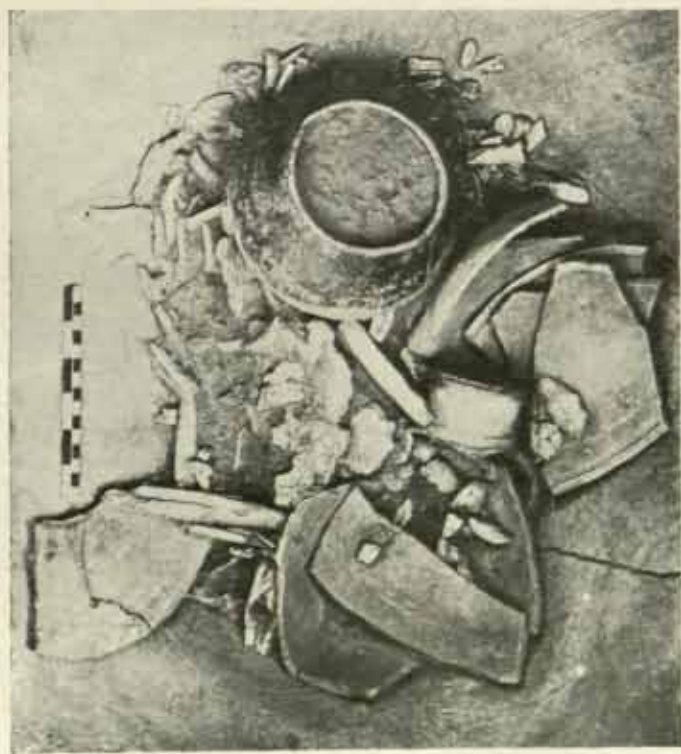
A. AMRM (B)-3: skeletal remains inside Urn C. See p. 24.



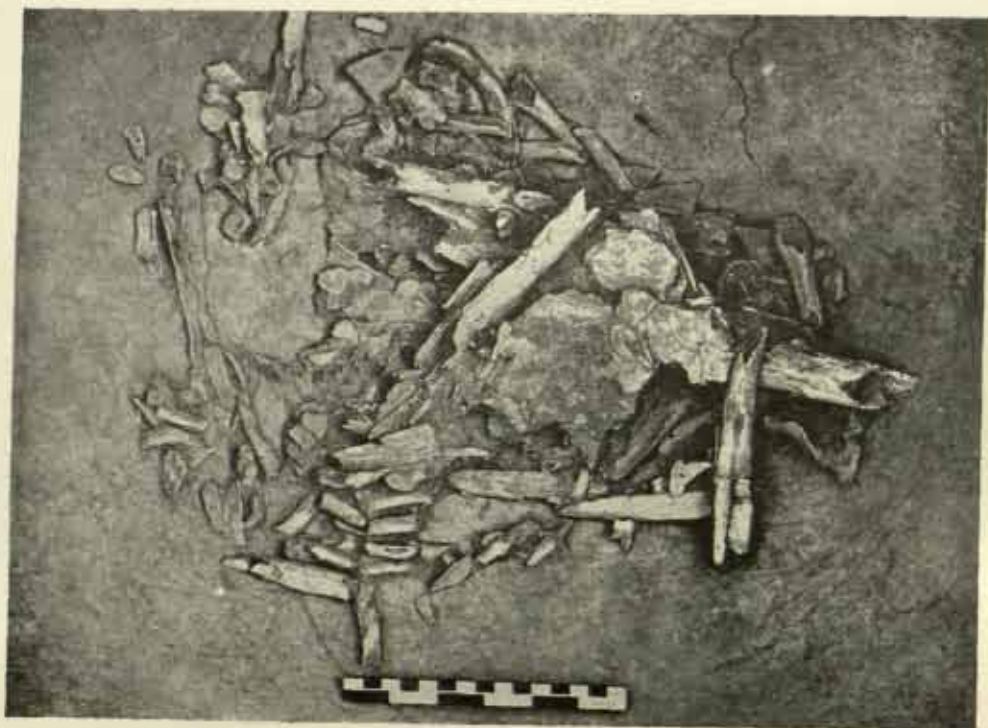
B. AMRM (B)-3: cranial remains inside Urn D. See p. 24.



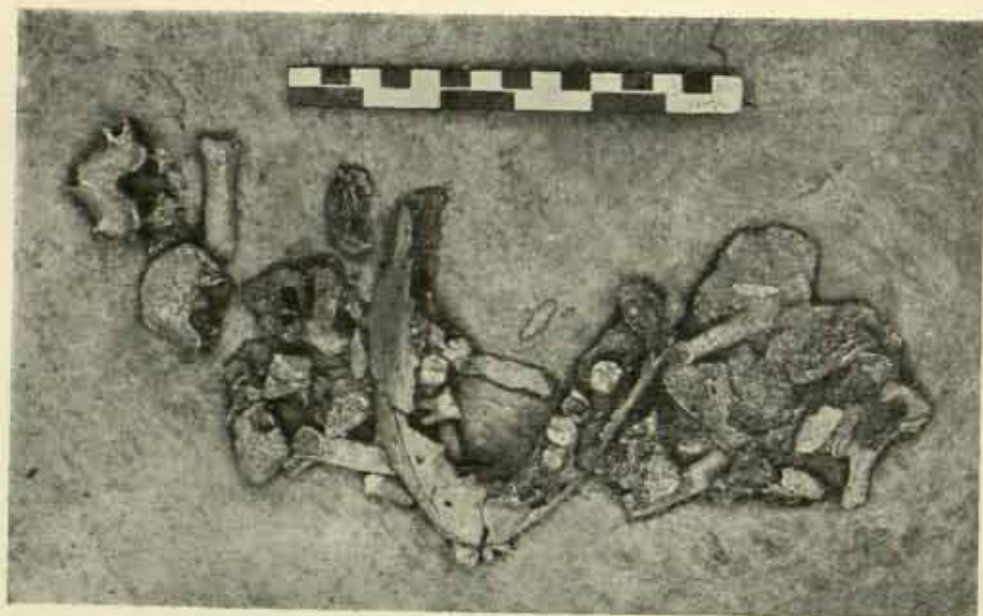
A. AMRM (B)-3: contents of Urn E. See p. 25.



B. AMRM-3: contents inside the urn. See p. 25.



A. *AMRM-3: skeletal remains inside the urn. See p. 25.*



B. *AMRM-3: cranial remains inside the urn. See p. 26.*

This practice contrasts with the evidence of the so-called Asur burials in the Munda country in the Ranchi District, Bihar, wherein calcined and fragmentary bones have been found interred. Such a practice has been observed in the Nilgiris.

The practice of post-exarnation, fragmentary and multiple burial of skeletal remains met with in the urn-burials at Amirthamangalam conforms to that normally observed in the megalithic tombs of south India.

B. AMRM-2

(i) Urn D

General.—Urn D is situated towards the northern end of the group known as AMRM-2. It had a damaged lid.

The bones (pl. XIVB) found in this urn are disarticulated and uncalcined as found elsewhere. The interment is also fragmentary. They were placed inside the urn in a jumbled fashion and were huddled together in a heap.

The skull.—A very much disintegrated skull, surviving mostly in a mould of earth, with an occasional thin bony surface sticking to it, was found on the southern extremity. The skull lay on its parietal (left?) occipital touching the western side of the urn. The maxillary portion had entirely disintegrated. A number of loose teeth, found to the east and lying at the bottom of the urn, might probably belong to the maxillary portions.

Long bones.—Touching the pelvic bone was a tibia with both ends broken. Contacting the proximal end of this tibia was the other tibia whose distal end diverged. These two were found with their proximal ends towards south-west. In between these two were humeri and two broken parts of two fibulae.

At the extreme end towards the north, touching the urn, were two femurs with their ends broken and damaged. They happen to have been placed almost vertically. Here also the proximal ends were placed pointing towards the bottom of the urn. Orientation was S.W.—N.E.

About fifteen long bones (pl. XVA) were found huddled together mostly in the centre of the urn and slightly towards the north. A few were also found on the southern side, one almost touching the side of the urn at a distance.

Other bones.—In between the long bones on the extreme north and the cluster of bones in the centre, parts of other smaller and long bones were found. On top of the two long bones in the centre and touching the tibia on the north were fragments of pelvic bones.

Lying across and roughly N.—S. and partly resting on the pelvic bone and touching the urn on the southern end was a shaft of an ulna measuring 8" (0.203 m.) in length. Both ends were broken. It was in a fairly good state of preservation and probably belonged to a young adult. Between the black bowl touching the urn in the north and the skull and overlying the tibia was a broken humerus, 10" (0.254 m.) in length. This might also belong to a young adult.

Lying together with the two tibiae were two shafts of two fibulae measuring 4" (0.102 m.) and 8½" (0.221 m.). The humerus was on the southern side, and in between the tibia on the south and the other humerus on the north was the shaft of a radius with its ends broken. It measures 5" (0.127 m.) in length.

Mandible.—At the very bottom were found three broken pieces of a mandible and a few broken pieces of ribs. The lower jaw had three teeth, probably molars in articulation. Another bit of the mandible with one molar and a premolar was found sticking to the western side of the urn, and this was completely hidden by the skull.

Bones inside a black bowl.—Inside the black bowl on the north were found pieces of vertebrae and ribs. These probably were pushed into the bowl by the pressure of the earth-filling.

A number of teeth were found scattered inside the urn on the southern half. These probably have fallen off from the disintegrated upper jaw lying above. The teeth are nine in number: three molars (fragments with cusps in two, the third showing signs of caries), two pre-molars (the cusps in both are good, suggesting recent eruption), three incisors (slightly eroded) and an undeveloped incisor (?).

General conclusions.—Though the bones exhibited signs of disintegration, specially at the proximal and distal ends, and were invariably damaged, yet it may safely be said that these were in a better state of preservation than the bones found in other urns. These probably belonged to two adult individuals.

List of bones.—The following is the list of bones recovered from Urn D.

1. (a) Two humeri: four broken parts—distal and proximal ends broken—of an adult.
(b) One humerus: broken distal end of a young adult (second individual?).
2. Two femurs: broken into two parts at the middle of the shaft; distal and proximal parts broken. Belong to a sturdy individual.
One femur: broken into two parts at the middle of the shaft, belongs to a young individual (second individual).
One femur: broken bits of a second femur(?) of a young individual (?).
3. One tibia: broken into two parts at the middle of the shaft; distal and proximal parts broken.
One tibia: belongs to a sturdy individual. A small broken end of the shaft of the same sturdy individual.
One tibia: three broken parts of the shaft of a young individual (?).
4. Two fibulae: four pieces of the shafts of two fibulae of an adult.
Two fibulae: six pieces of the shaft of fibulae of a young individual (?).
5. One ulna: one broken shaft of an ulna of a young adult (?).
6. One radius: two broken parts of a radius of a young adult (?).
7. Pelvic bones: several broken parts.
8. Teeth: (a) three molars, cusp in one worn out; (b) one pre-molar; (c) two incisors; (d) several broken parts of molars and other teeth—roots of all the molars broken excepting one; and (e) one deciduous molar (another individual ?).
9. One mandible: one piece of an adult.
(a) Left half of a mandible with three molars in their respective sockets.
(b) One broken part of a mandible with one pre-molar and one molar in their respective sockets.
(c) Right ramus of a mandible with both the condyle and coronoid processes broken (probably of a second young individual male).
10. Maxilla: one broken part of a maxilla with two molars in the sockets, of an adult.
11. Miscellaneous: broken parts of ribs, phalanges, vertebrae and other unidentifiable bits of smaller bones.

(ii) *Urn E*

Only a few broken bits of bones (pl. XV B) were found deposited at the bottom of this urn constituting broken bits of ribs, fibula, scapula, clavicle and other long bones of an adult.

C. AMRM (B)-3

(i) *Urn A*

General.—Urn A is the smallest of the three urns found in a pit to the west of the road. The urn was placed rather vertically (a slight, though negligible, tilt towards east was perceivable). Although the urn was found in a good shape, signs of decay were apparent; many fissures running down from top to the very bottom were observed. Straggling remains of what might have been once a lid were also observed.

Inside the urn, several pieces of what once constituted a red ware earthen pot were found. It had a red slip and slanting incised decorations. A few fragments of black ware were also found, associated with them.

Bones began to appear at a depth of 3' 7½" (1.104 m.), just below these broken potsherds. They lay at about the belly-level of the urn. Like all other urns this was also filled up to the brim; curiously enough, the rim-portion of the red pot was not available. The breakage of the urn might be attributed to the pressure of the overlying earth-filling inside the urn. This urn also had a pedunculated bottom.

The skeletal and cranial vestiges contained in this urn might conveniently be divided into three groups, viz., one lying on the eastern side, the middle one lying at the bottom of the urn and the last at the north-west. The bones were in an extremely disintegrated condition beyond redemption, becoming powdery by the mere touch of the fingers and had formed into lumps with the earth-filling.

The jumble on the east consisted of the broken bits of shorter bones (probably three pieces of phalanges) and some pieces of longer bones.

On the south-eastern side of the lump sticking to side below the bones at the top was a fragment of a skull piece. It was about 1½" (0.008 m.) in thickness and was in an advanced state of disintegration.

The group of fragmentary bones at the bottom in a lump consisted probably of the internal basilar surface of the occipital portion of the skull which survived only in a small thin sheet. On the southern side touching the urn was a piece of long bone. Underneath this cluster was a broken shaft of a tibia, 3½" (0.088 m.) long.

The long bones on the north-west.—On the north-west is a long bone with its major axis N.E.—S.W. The proximal and distal ends of this were not found, and only a portion of the middle region was obtained. This forms the shaft of a femur measuring about 7½" (0.190 m.) length. At the south-west end lying on top of it at an angle of about 60° was a piece of another long bone in fragmentary condition. Another piece of a long bone in this cluster was a bit of a fibula.

Only one molar was found sticking to the side of the urn on the south-west. It is a deciduous molar, the root of which was found damaged.

General remarks.—Judging from the meagre remnants of the long and other bones it appears that they did not inter all the bones of a single individual in the urn. Excepting for the presence of one deciduous tooth, all the other bones were that of a young adult.

Deformity in a femur.—Distinct sign of a longitudinal fracture of about $3\frac{1}{4}$ " (0·082 m.) long, running almost parallel to the *Linea aspera* to a distance of about $\frac{1}{4}$ " (0·006 m.) from it, on the posterior side of the shaft of the femur and its ultimate union with the body could be seen clearly. On the anterior side, the fracture was about $2\frac{1}{2}$ " (0·063 m.) long and had united completely leaving a faint mark at the line of union. On the medial side, it was two inches (0·050 m.) round and the line of fracture with its ultimate malunion (pl. XVC) with the body could be observed very clearly. It is a case of malunion of the parts of the same bone, through overlapping of parts during life, at the line of fracture. The subject must have received an injury on the affected part through probably some accident, which even after union left a deformity by way of a lateral bulge.

(ii) *Urn C*

Only three broken shafts (pl. XVIA) of about 4" (0·102 m.) in length were seen deposited near the bottom of the urn. They were extremely fragmentary and had completely disintegrated.

(iii) *Urn D*

General.—At the very bottom of this urn a much disintegrated skull (pl. XVI B) surviving in the facial portion and parts of the parietals was found. The entire vault of the skull including the occipital had wholly disintegrated. No portion of this end was found. The facial portion was survived by the superciliary arches, the nasal bone and to some extent the zygomatics. Lower portion of the face and the maxilla could be discerned. Similarly, the lower portion of the orbits was not complete, its lower margin having been eaten away. The lower margin of the nasal aperture along with the maxilla was also eaten away and showed a wider gap through disintegration.

Lower jaw.—The lower jaw was resting in front of the skull touching the urn on the east, the right condyle of the mandible having gone into the right eye cavity. The other ramus with its condyle and coronoid processes was broken and was lying a little away in a slanting position to the north. The left ramus got detached from the body at the junction, through disintegration. The body of the lower jaw beginning from the right pre-molar up to the end at the extreme left molar had entirely disintegrated from the alveolar margin to the rest of the body touching the urn. All the sixteen teeth were present and apparently lay in position, without the body of the mandible which had completely disintegrated.

All the teeth showed distinct signs of wear suggesting advanced age. The right side of the mandible, which was intact up to the first pre-molar, was comparatively in a fair state of preservation excepting the edges touching the urn. The condyle and coronoid processes on the right side were intact.

The teeth were in articulation almost showing the curve. The alignment on the left had shifted.

Towards the west, touching the bottom of the urn, was a lump which probably is a portion of the left side of the occipital bone joining together with the left parietal. Adjoining this and placed a little to the south was a fragment of a shaft of a fibula going underneath the skull, besides (i) a portion of a rib, (ii) a portion of a long bone, (iii) a portion of vertebrae, and (iv) fragments of unidentified bones.

List of bones.—The following is the list of bones found in Urn D.

1. Disintegrated skull.
2. Disintegrated mandible with a full set of teeth.
3. Two femurs with three broken shafts of an adult.
4. Two broken shafts of a tibia.
5. Six broken bits of fibulae.
6. Three broken bits of clavicles.
7. One disintegrated scapula.
8. Four bits of phalanges.
9. Ribs; one broken bit sticking into the cavity of the skull.
10. Vertebrae; one broken bit into the cavity of the skull.

(iv) *Urn E*

Only a single broken bit of a long bone (pl. XVII A) was found which survived in a thin sheet laid over an earthen core which got completely disintegrated.

D. AMRM-3

General.—Bones found in this urn were disarticulated, uncalcined, fragmentary and were found in a very bad state of disintegration. They had been placed at the bottom of the urn. An intact Black-and-red Ware bowl and a broken pot were also found on the top of this heap of skeletal and cranial remains (Pl. XVII B). Due to some accident, the straight-necked pot had broken, and its fragments were found strewn in all possible places—on top as well as below the heap of bones. Some of the bones were found lodged into the broken bits of this pot probably on account of the pressure exerted at the time of the accident and by the overlying earth-filling. The urn was filled up with earth up to a height of 2' 3" (0.686 m.)—about three-fourths of its height. Like other urns excavated in this area, this urn was also filled up to the brim and covered with a lid, broken portions of which were found in the section. But the later disturbances here by quarrymen or the inquisitive public reduced the level of the filling. A few laterite blocks were also found into the filling of the urn.

General remarks on the bones.—There seems to be no particular arrangement about the placing of these bones (pl. XVIII A) in a specified space or in a formulate fashion. They were found jumbled together on all sides all over the area at the bottom of the urn. In fact, the long bones and other fragments were found in a cluster.

The skeletal and cranial remains were in a much disintegrated, worn-out and broken condition.

Bones of more than one individual have been interred in this urn, and this is confirmed by the presence of skull pieces of an infant and a dozen deciduous teeth consisting of molars, pre-molars and incisors. The mandible at the bottom-most part of the urn with seven teeth in position (six molars and one pre-molar) belonged, without any doubt, to an adult. The nature and structure of the long bones, vertebrae, metacarpals, metatarsals and phalanges confirm that they belonged to a grown-up man.

Judging from the dentition in the lower jaw it may be concluded that the second individual was a fully grown-up adult whose age may be placed somewhere beyond thirty years.

The skull.—Some of the disarticulated bones of the skull, particularly occipital and parietals, were found in the centre of the heap near the Black-and-red Ware bowl. Two long bones at the top and one at the bottom and fragments of long bones had circumscribed the cranial remains.

The disarticulated skull-bones lay on its occipital region. Possibly these small skull pieces belonged to an infant and, therefore, justify the presence of the deciduous teeth, twelve in number consisting of molars and incisors, deposited at the bottom of the urn as also lodged in between the space occupied by long and other bones.

Long bones.—Immediately beneath the skull pieces, too much disintegrated (in the central region) long bones, about 14" (0.356 m.) long, were found astride the lower jaw, which was found placed at the very bottom of the urn. These long bones probably were femurs. They were oriented N.E.-S.W.

Other skeletal remains.—Fragments of ribs, (seven) long bones, phalanges, metacarpals, metatarsals, etc., were found scattered all over.

Nearly seventeen (excluding those in articulation in the mandible) teeth—molars, pre-molars, canine, incisors, etc., were found strewn in all conceivable places. Some of these were deciduous which might point to the possibility of bones of more than one individual being interred in one urn. Portions of vertebrae were also found, two on the east of the long bones, two on the west, two beneath the long bones, one at the north-east and the other at the south-west ends. One canine was found inside the cavity of the atlas.

Mandible.—The lower jaw (pl. XVIII B) was practically placed at the bottom of the jar and, like other bones, was broken and in a very bad state of disintegration. It was an adult jaw with a somewhat prominent chin. The two ascending rami were broken and got much worn out at their outer edges. All the molars had erupted. On the left side, the second pre-molar and all the three molars were found in their respective sockets (four teeth). The cusps of the first molar showed signs of erosion, the second molar had a deep groove, covering almost the entire length and breadth showing signs of caries. The third molar showed signs of having been erupted recently with very little signs of the corrosion of the cusps. On the right side, three molars were found placed nearby but out of their sockets. Although the second molar was there in its socket it had been driven deep inside, probably due to the weight of the other bones placed over it. The femurs already mentioned were found placed over this mandible. Altogether twelve teeth consisting of molars, pre-molars, canine, and incisors were found here. All this would show that the individual was a fully grown adult.

[Received on the 1st April 1966,—Ed.]

APPENDIX
LIST OF URN-BURIAL SITES EXPLORED

Serial No.	Site	Lat. & Long.	Taluk	Description	Remarks
1	2	3	4	5	6
A. CHINGLEPUT DISTRICT (Tamilnadu)					
1.	Amirthamangalam	13° 24' 15" N 80° 3' 12" E	Ponneri	Urn-burials cover an area of 27·87 sq. m. marked by barrows.	Damaged by quarrying. (The excavations at this site form the subject of the present publication.) A virgin field. No other megalithic type occurs here.
2.	Attantangal	13° 12' 30" N 80° 10' 0" E	—do—	An extensive urn-burial site, marked by barrows rising from 15 to 30 cm. above the surrounding ground level and distinguished by a scatter of chips of granite.	
3.	Chellapillaiyarkuppam	13° 17' 38" N 80° 9' 20" E	—do—	Broken fragments of urns and sarcophagi found on the surface. A mound about 365·76 m. in diameter.	No other megalithic type occurs here.
4.	Nallur	13° 13' N 80° 9' 20" E	—do—	An extensive barrow site marked by somewhat raised mounds with a scatter of granite chips. Fragments of urns and sarcophagi are found in the quarry pits.	Neither stone-circles nor any other type of megalithic monuments are reported from the site.
5.	Perumbedu	13° 21' 25" N 80° 14' 30" E	—do—	Black-and-red Ware and other megalithic ware sherds strewn on the surface.	No other megalithic type occurs here.
6.	Siruvadu	13° 23' 45" N 79° 59' 45" E	—do—	A few urns are exposed on the surface.	Cairns enclosed in circles of lateritic stones dressed on the

APPENDIX—(Contd.)

Serial No.	Site	Lat. & Long.	Taluk	Description	Remarks
1	2	3	4	5	6
7.	Kallumedu	13° 12' 30" N 79° 54' 15" E	Tiruvallur (formerly spelt Trivellore)	A number of broken urns were found in quarry pits on a lateritic ridge, with indications of barrows, with a scatter of granite chips. Fragments of sarcophagi were also found.	exterior is the common type of associated megalithic monuments. Some pieces of slabs of granite (in a lateritic area) may probably have served as capstones over pits containing urn-burials, though the point remains yet to be examined.
8.	Palavakkam	13° 19' 30" N 79° 54' 15" E	—do—	An urn-burial site; some urns have been exposed by quarrying.	There are no superficial indications as at Attantangal.
9.	Sengarai (Thandumedu and Kallumedu)	13° 19' 50" N 79° 59' 30" E	—do—	Mound strewn with granite chips. It is a probable urn-burial site as at Attantangal.	Villagers have spoken of a granitic slab, probably a capstone of the urn-burial.
10.	Guindy (Madras, Premises of the King Institute).	13° 1' N 80° 13' E	Saidapet	Buried pots (urns?) were reported by Lt. Col. King, former Sanitary Commissioner, Madras.	A. Rea who had inspected the site was of the opinion that it was probably a deserted village. Investigation of the site has not revealed any other remains, and it is, therefore, a doubtful site.
11.	Mettupalaiyam (Tettteri)	13° 8' 40" N 80° 13' 30" E	—do—	A barrow-site with remains of urns and sarcophagi and Black-and-red Ware pottery.	The barrows have all been rifled. No other megalithic type occurs here. The urns have a discoid footed base.
12.	Pattur	13° 9' N 80° 9' E	—do—	The common type of monument on the site is the cairn surrounded by a stone-circle, though many of them appear to have been denuded of the bounding circle stones. The cairns are large in size, and have been seen to	V. D. Krishnaswami, who explored the site, considers that the cairns with multiple urn-burials served probably as family graveyards.

13.	Trisulam	12° 88' N 80° 10' E	—do—	contain pyriform urns, besides terracotta sarcophagi. In some cases with sarcophagi there were no bounding circles. The circle-stones, of laterite, were chiselled on the exterior. The southern slope of the hill to the east of the village is strewn with fragments of legged sarcophagi and urns. There are a few undefined barrows near the water-line of the tank near the village. The Madras Museum excavated an area in 1944 and exposed an urn and sarcophagi. One sarcophagus was oriented north-south. It is, apparently, a habitation site with bits of urn-like pots bearing a raised decorative band of rope-pattern below the rim, and sherds of the Black-and-red Ware usually met with in the megaliths. An extensive graveyard marked by a large number of cairns, some of which are defined by mutilated and hence discontinuous stone-circles. These enclosed both sarcophagi and urn-burials often in close juxtaposition. The urns had pointed bottom or a pedunculated base and were covered with a lid. Stone-circles enclosing dolmenoid-cists and cairns, respectively, and urns with a knobbed bottom (pyriform ?) without the bounding circle lying exposed on the stones of a hillock characterize the site. Sarcophagi are also reported from the neighbourhood (Sirumathur). It is a huge megalithic site with cairn-circles, and circles enclosing dolmenoid-cists. Terracotta sarcophagi were noted inside dolmenoid	Information about King's remarks from V. D. Krishnaswami. Also see <i>ARASI</i> 1903-04, p. 45.
14.	Pulal	13° 9' 40" N 80° 12' 30" E	—do—	A palaeolith, an ovate, was picked up on the surface.	
15.	Chikkarayapuram	13° 1' 20" N 80° 6' 10" E	Sriperumbudur	The type of the urn-burial is the same as at Amirthamangalam.	
16.	Malaipattu	12° 55' 30" N 80° 0' 30" E	—do—	The pyriform urns occur about 45 cm. below ground level.	
17.	Vadamangalam	12° 57' 45" N 79° 54' 15" E	—do—	The orientation of the sarcophagi is usually east-west. The site is ideal for excavation.	

APPENDIX—(Contd.)

Serial No.	Site	Lat. & Long.	Taluk	Description	Remarks
1	2	3	4	5	6
18.	Kalattur-Puduppakkam	12° 37' 45" N 79° 58' 30" E	Chingleput	Pyriform urns were found, apparently, without the bounding circle about 30 cm. below ground level. Broken urns are seen exposed on the surface on a site which also has dolmenoid-cists, some with capstone flush with the cairn and cairn-circles. The megalithic site is characterized mainly by dolmenoid-cists and cairns over the hill and slopes and urns in the erosion gullies on the slopes of the hills. Cairn-circles and urns within stone-circle enclosures occur here. Essentially it is a site with cairn-circles and stone-circles enclosing dolmenoid-cists. Cairns have revealed remains of sarcophagi as well as fragments of upper parts of urns.	The urns are apparently not surrounded by circles, but occur in juxtaposition with the megalithic monuments. The site is ruined by quarrying.
19.	Kumili-Ortivakkam	12° 47' 40" N 80° 7' 20" E	—do—		
20.	Manamai	12° 34' 30" N 80° 9' 40" E	—do—		
21.	Nandivaram	12° 50' 30" N 80° 4' 20" E	—do—		
22.	Nellikuppam-Vembudu	12° 44' 30" N 80° 8' 30" E	—do—	Remains of circles with scattered fragments of urns and sarcophagi have been found here.	A few pieces of urn were found on the surface.
23.	Padur	12° 48' 20" N 80° 13' 40" E		Cairns and dolmenoid-cists occur here. The cairns entomb multiple urns together with stray sarcophagi.	The co-occurrence of the sarcophagus and urns is also to be seen at Pottur in Ponnéri Taluk of the district.
24.	Reddikuppam	12° 41' 45" N 80° 3' 45" E	—do—	Pieces of smashed urns without any enclosure occur together with cairn and dolmenoid-cist circles.	The funerary monuments are on the slopes of the hillock.
25.	Sempakkam-Kottamalai	12° 42' 30" N 80° 7' 0" E	—do—	Cairns, dolmenoid-cists, both enclosed by circles and urn-burials exposed inside the cairns, are the types.	

26.	Tirupporur	12° 43' 30" N 80° 11' 30" E	—do—	A huge megalithic site extending all over slopes of the hill, having cairn-circles, and circles enclosing dolmenoid-cists and urn-burials without circles.	The site has been much damaged by the construction of the railway track that cuts across burial ground.
27.	Vandalur Hill	12° 54' N 80° 5' 40" E	—do—	A site with cairn-circles and circles enclosing dolmenoid-cists occur here. Dolmenoid-cists sometimes enclose terracotta legged sarcophagi. Fragments of urns have been found on the surface.	The average diameter of the ruined urns at their belly level is 40 cm.
28.	Amandankaranai	12° 20' N 79° 56' E	Madurantakam	Broken remnants of four urns were found on a sloping high-ground away from the megalithic site near the village characterized by the cairn-circles.	The average diameter of the urns at their belly level is 76 cm.
29.	Malaivaiyavur (Mampattu)	12° 35' 45" N 79° 58' 30" E	—do—	The megalithic monuments occur around the hillock near Malaivaiyavur and comprise dolmenoid-cists often with a capstone flush with the cairns while urns occur in erosion gullies to the east of the hill. Pieces of sarcophagi are also strewn on the surface.	This site was excavated by Shri K. V. Soundara rajan and the present author in 1950 and 1952, respectively. See <i>Ancient India</i> , no. 15, pp. 4-42. The urns were not tackled during the excavations mentioned above. One dolmenoid-cist was made of dressed slabs of granite.
30.	Sanur- Ariyapakkam	12° 34' N 79° 55' E	—do—	It is an extensive site containing cairn-circles, dolmenoid-cists and cairns with a capstone flush with the cairn surrounded by circles while pieces of urns and sarcophagi are found exposed in quarry pits.	
31.	Vilangadu	12° 20' 30" N 79° 55' 45" E	—do—	Cairns as well as dolmenoid-cists, with or without the bounding circles, the absence of which may be set down to spoliation, are plentiful. One urn was found exposed on the erosion gully. Its diameter at belly level was 33 cm.	
32.	Ullavur	12° 47' 45" N 79° 53' 30" E	Kanchipuram	The site is a continuation of the megalithic burial grounds at Kundumalai in Varadapuram.	

Serial No.	Site	Lat. & Long.	Taluk	Description	Remarks
1	2	3	4	5	6
Traces of multiple urns in eroded ground and some cairns have been observed.					
B. NORTH ARCOT DISTRICT (TAMILNADU)					
33.	Tellur-Venkoram	12° 32' N 79° 35' E	Wandiwash	The site contains both dolmenoid-cists and cairns, with circles and broken urns, without any bounding circle, lying exposed on the surface.	
C. SOUTH ARCOT DISTRICT (TAMILNADU)					
34.	Mullur	12° 8' N 79° 21' E	Gingee	The site contains cairn-circles and dolmenoid-cists enclosed by circles with or without dressed slabs. The cairn-circles contain terracotta sarcophagi or urn-burials. Though the site contains simple cairn-circles and cairn-circles with the capstone flush with the cairn, a solitary sarcophagus and an urn without any bounding circle were found side by side.	As rare examples, slab-dolmenoid-cists enclosed by double concentric slab-circles as at Brahmagiri also occur here.
35.	Varikkal	12° 9' N 79° 23' 30" E	—do—	The site contains cairn-circles only. There is a local belief that the cairns enclose a slab covering an urn containing bones and pottery.	The local tradition has not been put to the test of the spade.
36.	Kurumankottai	12° 2' N 79° 39' E	Tindivanam	Cairn-circles and cairn-circles enclosing dolmenoid-cists occur here within a field of urns, ranging in diameter from 60 cm. to 84 cm. at their belly level lying exposed in close proximity.	The site is a continuation of the adjoining megalithic site at Palamukkal.
37.	Nallalam	12° 11' 45" N 79° 44' 30" E	—do—		

38.	Palamukkal	12° 11' 45" N 79° 44' 30" E	—do—	Cairn-circles and cairn-circles enclosing dolmenoid-cists, and a few urns in close proximity, only one of which was within the enclosure of a circle but very near the edge, occur here. The urns have an average diameter of 51 cm. at their belly level. It is a sandy plateau strewn with lateritic grit containing large numbers of ribbed urns and sarcophagi. There is a habitation site having the form of a mound with a large number of urn-burials lying exposed and damaged in the erosion gullies in the neighbourhood. There are indications of cairn-circles in the area. The sarcophagi are absent. The urns are called in local parlance <i>Musumuk-kaisal</i> , the tombs of ripe old men. The site contains cairn-circles only, and goes by the local name of Kurubankottai and is believed to be the site of ancient urn-burials. Exploration has not led to the discovery of urns.	Bones, iron and pottery were reported by L. Fauchaux of the Petite Seminaire, Pondichery.
39.	Perambai	11° 56' 20" N 79° 45' 30" E	Villupuram		
40.	Sengamedu	12° 1' N 79° 40' E	Tindivanam		
41.	Tiruvakkarai	12° 2' N 79° 39' E	—do—		
D. THANJAVUR DISTRICT (TAMILNADU).					
42.	Sonnaivan-Kadu	10° 6' N 78° 58' E	Arantangi	The site contains only small cairn-circles of lateritic boulders probably entombing single urn-burials as at Kalasakkadu in District Tiruchirappalli.	The point whether the cairns entomb urns has yet to be verified by excavation.
E. TIRUCHIRAPPALLI DISTRICT (TAMILNADU).					
43.	Kalasakkadu	10° 22' 20" N 78° 50' 30" E	Alangudi	The site contains (i) small cairn-circles, of laterite blocks, entombing single urns covered by a gneissic slab and (ii) large cairn-circles	The type of single urn cairn-circle recalls the Pookalam variety of urn-burials. The belly diameters vary from

APPENDIX—(Contd.)

Serial No.	Site	Lat. & Long.	Taluk	Description	Remarks
1	2	3	4	5	6
				entombing multiple urns around a large central one, without involving the use of a capstone.	40·6 to 60·9 cm. The site was excavated by the then State Museum in 1917. The pottery tallies to an extent with the pottery from Perumbair in District Chingleput excavated by A. Rea. The name Kalasakkadu is significant as it means the (forest) ground of urn (burials). The type of single urns with capstone embedded in the cairn and the whole surrounded by a circle recalls the Kerala type represented by the urn-burial at Porkalam as well as with the <i>Kudakkallu</i> type of that region. The multiple urns again are comparable to the multiple <i>Kudakkallus</i> enclosed by a circle of orthostatic slabs in the same region. The site at Kalasakkadu is representative of the entire Pudukkottai region, where it is situated, now forming part, as a Revenue Division, of the Tiruchirappalli District.
44.	Annavasal	10° 27' 45" N 78° 43' 30" E	Kolattur	The site has (i) cairn-circles, entombing urns, as at Kalasakkadu, (ii) cairn-circles enclosing and covering slab-cists and (iii) menhirs surrounded by circles. One of the small cairns had a	

45.	Kadumbalur	10° 37' 30" N 78° 30' 50" E	—do—	capstone, obviously covering an urn below. Traces of urn-burials have been found near the large monolithic bull in the village and, considering the occurrence of megalithic monuments at Pulavayal in the vicinity, these urns can be assigned to the megalithic-complex. It is an extensive megalithic site containing cairn-circles, slab-cist circles, and the Kalasakkadu type of single urn-burials under cairns. The site has been much damaged by cultivation, and the megalithic remains indicate the occurrence on the site of slab-cist circles and cairn-circles with capstone covering urn-burials of the Kalasakkadu type. It is a mixed site containing slab-cist circles and cairn-circles with single urn-burials. The site has both single urn and cist-burials. It is primarily a single urn-(with cairn) burial site within a single slab-cist burial. The site has both cists and cairns containing single and, possibly, multiple urn-burials. It has both urn and cist burials.	The cists were excavated by the State museum in 1937.
46.	Kaliyapatti	10° 38' 40" N 78° 53' 20" E	—do—		See <i>Manual of the Pudukkottai State</i> , Part II, p. 1029.
47.	Kiranur	10° 34' 20" N 78° 47' E	—do—		<i>Ibid.</i> , Vol. II, Part II, p. 1113.
48.	Vattanakkurichi	10° 29' 50" N 78° 52' E	—do—		<i>Ibid.</i> , Vol. I, p. 523.
49.	Melmuttukkadu	10° 30' 10" N 78° 48' E	—do—		
50.	Melur	10° 21' N 78° 46' 30" E	—do—		
51.	Poyyamani	10° 33' N 78° 28' 30" E	—do—		
52.	Rajagiri	10° 34' 30" N 78° 34' E	—do—		
53.	Sittannavasal	10° 28' N 78° 43' 30" E	—do—		
54.	Surandappatti	10° 31' N 78° 52' 10" E	—do—		The capstone is either of granite or laterite. <i>Ibid.</i> , Vol. II, pp. 514, 523.

APPENDIX—(Contd.)

Serial No.	Site	Lat. & Long.	Taluk	Description	Remarks
1	2	3	4	5	6
55.	Tayinippattikulam	10° 31' 50" N 78° 45' 30" E		The site has both cist and urn-burials surrounded by circles of laterite stones dressed on the exterior. While there is no doubt about the slab-cist burials, which predominate in the site, there are cairns enclosed by lateritic stone-circles, which may contain single or multiple urn-burials. It has slab-cists as well as urn-burials. Some cairns have capstones. Those with capstones are suspected to have a single burial urn and those without, multiple urns. It has only cairn-circles, entombing, inferably, single urn-burials.	The cists are invariably of granite slabs.
56.	Vaguparti	10° 26' 15" N 78° 46' 25" E			<i>Ibid.</i> , p. 1116. The capstones within cairns occurring at Kilivanjanparai near the site are of the Kala-sakkadu-type.
57.	Karai	11° 7' 30" N 78° 58' 5" E	Perambalur		The urns are locally called <i>Mudu-makkal-tazhi</i> , meaning, in Tamil, old men's burial urns.
58.	Adimalam	10° 15' 20" N 78° 53' 30" E	Tirumayam		There seems to have been an iron-smelting centre at this site which should have utilized lateritic ores.
59.	Sivapuram	10° 20' 30" N 78° 47' 30" E	—do—	It is a cairn-circle site, containing, inferably, urn-burials. It has both slab-cist circles and cairn-circles, the latter with capstones covering single urn-burials as at Kalasakkadu. Some of the exposed urns are 50.8 cm. in diameter at the belly level.	
60.	Sokkanathappatti	10° 16' N 78° 49' 20" E	—do—		
61.	Terimalai	10° 19' N 78° 35' E	—do—	It has both urns and cists enclosed by circles. Both single and multiple urns are expected here. Broken urns lying exposed on the pathway through the village with the evidence of slab-cist with port-hole were observed here.	
62.	Tuttur	10° 18' 30" N 78° 33' E	—do—		